U.S. DEPARTMENT OF TRANSPORTATION

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NATIONAL HIGHWAY TRAFFIC SAFETY

ADMINISTRATION

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PUBLIC MEETING ON THE SAFETY IMPLICATIONS
OF DRIVER DISTRACTION WHEN USING
IN-VEHICLE TECHNOLOGIES

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Tuesday, July 18, 2000

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The meeting was held in Room 2230,

Department of Transportation, 400 Seventh Street, S.W.,

Washington, D.C., at 8:30 a.m., Dr. Joseph N. Kanianthra,

Director of the Office of Vehicle Safety Research, NHTSA,

moderating.

PANEL MEMBERS PRESENTS:

JOSE[PH]* N. KANIANTHRA, Ph.D., NHTSA

ROSE A. McMURRAY, NHTSA

STEPHEN KRATZKE, NHTSA

JOHN WOMACK, NHTSA

JEFFREY PANIATI, Federal Highway Administration

PANEL MEMBERS PRESENT (Continued):

     DANIEL HARTMAN, Motor Carrier Safety

        Administration

SPEAKERS PRESENT:

     DAVID AYLWARD

     FRANCES D. BENTS

     TERRENCE E. CONNOLLY

     THOMAS A. DINGUS, Ph.D.

     GERALD DONALDSON, Ph.D.

     MARK L. EDWARDS, Ph.D.

     W. RILEY GARROTT, Ph.D.

     BRIAN GRATCH

     SEAN MAHER

     Y. IAN NOY, Ph.D.

     ARLAN STEHNEY

     JOSEPH M. TESSMER, Ph.D.

     KATHRYN LUSBY-TREBER

     TOM WHEELER

     JOYCE WHITE, R.N.

     VANN WILBER

ALSO PRESENT:

     ROSALYN G. MILLMAN, Deputy Administrator

         NHTSA

     MICHAEL PEREL, NHTSA

C-O-N-T-E-N-T-S

1   P-R-O-C-E-E-D-I-N-G-S

2   (8:37 a.m.)

3   DR. KANIANTHRA: Good morning. Welcome to

4   the public meeting on the safety implications of driver

5   distraction.

6   My name is Joseph Kanianthra. I'm the

7   Director of the Office of Vehicle Safety Research at

8   NHTSA.

9   This public meeting is one of two events we

10   have planned on this topic. The other even[t]* is the

11   Internet forum, which ma[n]y* of you may have had a

12   chance to see. You will hear more about the reasons for

13   these events later on.

14   You are requested to keep your wireless

15   phones and beepers off so that we are not distracted from

16   the proceedings of this morning.

17   In response to the notice we published

18   announcing this public meeting, we have received several

19   requests from interested parties who wish to speak on the

20   subject of driver distraction. You will be hearing from

21   them all shortly.

22   We have assembled a panel of Department of

1   Transportation officials to ask questions, to obtain

2   clarifications, and to elicit information on each

3   presentation from the speakers.

4   I will introduce those panel members also

5   shortly.

6   The format for this public meeting is going

7   to be, first, each speaker will make a presentation.

8   This will be followed by a question or more questions,

9   depending on how many questions are there, from the

10   panel.

11   Copies of the agenda are available on the

12   table outside, and we have a very full agenda.

13   Therefore, I urge all of the speakers to stay within

14   their allotted time.

15   To get an event like this organized in a

16   very short time is not an easy task. The responsibility

17   for organizing this public meeting and the Internet forum

18   fell on the broad shoulders of Mike Perel. Mike is a

19   research engineer in my office who has spent a lifetime

20   researching driving performance issues in the agency. He

21   has been the driving force in getting this meeting

22   organized.

1   He will now discuss the ground rules for

2 this public meeting and will give you the reasons for the

3 two events we have planned.

4   So without any further delay, let me call on

5 Mr. Mike Perel to give you the ground rules and a brief

6 account of the reasons for the public meeting and the

7 Internet forum.

8   Mike.

9   MR. PEREL: First, a few ground rules to

10 help us get through our agenda today. For the audience,

11 I want you to know our panel here has the first priority

12 in asking questions of the speakers, and if you have any

13 questions, we have spread around some white index cards.

14 You can write down the questions, and if you have any

15 answers, we'd like those, too, but we have some staff

16 around the room that if you don't have a card, raise your

17 hand and they'll give you one. If you have a question

18 and you want to send it up to the panel to ask a speaker

19 that question, raise your hand and we'll bring that up

20 here.

21   And unfortunately, of course, because of

22 time constraints we'll only have time for a few

1 questions.

2 We have a court reporter over here who will

3 be recording all of the statements and the report will be

4 placed in our docket, as mentioned in the Federal

5 Register notice, and to the extent possible I'll post

6 presentation remarks that have been prepared here in an

7 electronic format on the public meeting page of the

8 Internet forum.

9 If you didn't have a chance to sign a

10 registration form, at a break outside on one of the

11 tables you'll see that.

12 I think that's it for some of the minor

13 ground rules.

14 As you can see from the agenda, we're

15 fortunate that we have participants that represent a

16 diverse range of views and interests, and I personally

17 want to thank each of them for offering to contribute to

18 this meeting.

19 The purpose of the meeting is to gather

20 information about the safety impact of driver distraction

21 when using in-vehicle technologies, such as wireless

22 phones, navigation systems, wireless Internet, and night

1 || vision systems, and to call national attention to this

2 || issue which probably has been the most talked about

3 || safety issue this year.

4 || The concern is about the difficulties the

5 || drivers can have when they take their eyes and minds off

6 || the road to operate these devices. We're not at the

7 || stage where we think we know the final answer here.

8 || There's probably not even agreement we know what the

9 || questions are, but the hope is that by sharing

10 || information and different perspectives, we will be better

11 || able to direct our research to provide an understanding

12 || of what measures are needed to improve safety, while

13 || maintaining the many benefits these technologies may

14 || provide.

15 || As a researcher, that's certainly my hope.

16 || We also hope to achieve several other goals.

17 || One is to develop a common understanding of several

18 || things here: what direction technology is going; how to

19 || measure the characteristics and nature of the safety

20 || problem; any existing initiatives being undertaken to

21 || minimize the safety problem; and current research

22 || findings and directions.

1   In addition, we hope to involve all

2   stakeholders in this process, such as the researchers,

3   the technology industry, the motor vehicle industry, and

4   others.

5   And finally, we hope to provide background

6   information for discussions at a planned technical

7   workshop of experts to identify additional initiatives

8   and needed research. This is one of the ways we hope to

9   involve the stakeholders.

10   We have not worked out all the details yet,

11   but expect to hold the workshop this fall.

12   Recognizing that a one-day public meeting is

13   not sufficient to help us in this endeavor, I decided to

14   see if we could provide a forum for additional input

15   using the Internet. Why the Internet? Since the topic

16   of driver distraction is one that interests the public,

17   as well as the industry and research community, the

18   Internet allows the public to join in along []* these

19   other groups. It's a medium that facilitates sharing of

20   technical papers, as well as personal experiences and

21   opinions.

22   Since we're dealing with a technical issue

1   that is developed, in part, because of the Internet, it

2   seemed logical to use the Internet as the medium of

3   information exchange. Of course, we say as long as you

4   don't drive and interact with it at the same time.

5   Also, since we're dealing with an issue

6   that's being discussed in many countries, especially

7   Europe where they've already taken some steps to address

8   the safety issue, the Internet seemed a logical choice to

9   solicit international inputs. Since this is the first

10   time NHTSA has done this, we didn't know how well it

11   would work, especially given the short time we had to put

12   it together.

13   Well, a funny thing happened on the way to

14   the Internet forum. It worked. Before I briefly

15   describe how it's working, I wanted to take a few minutes

16   to publicly thank some of the people that helped me make

17   it work so well and the people who helped me with this

18   public meeting.

19   The first person I want to thank is someone

20   that many of you probably already know as an expert to

21   turn to when you have a question about driver distraction

22   research, and that's Mike Goodman. He's been a great

1   help to me, and I appreciate that very much.

2   The second person I'd like to acknowledge is

3   the logistics mastermind behind organizing all of the

4   details for this public meeting, and that's Rita Gibbons

5   over there.

6   I also want to thank Eddie Llaneras, who's

7   in the back, with WESTAT, who has helped quite a bit with

8   his creative ideas and hard work in getting the Internet

9   forum working.

10   And I'd like to also thank my management and

11   Joe Kanianthra for their support.

12   The Internet forum started on July 5th and

13   will be operational until August 11th. Afterwards it

14   will be archived on the NHTSA Web site.

15   We'll also prepare a report summarizing the

16   content and post it there as well later this summer.

17   In terms of numbers, we had 16 technical

18   papers that were written for the forum, which is great,

19   given the short time deadlines we had. These papers were

20   submitted from the U.S., Canada, and several European

21   countries.

22   In addition, we have posted a number of

1 other relevant papers that you can link up to.

2 We were hoping to learn more from the

3 Japanese experience where many drivers are already using

4 in-vehicle devices. Hopefully we'll get some additional

5 contributions in the next few weeks.

6 In our "ask the expert" feature on the Web

7 site, we've gotten 15 technical experts to volunteer

8 their time to answer questions. Surprisingly, they've

9 only been asked a few questions. So while there's still

10 time, log on and try to stump the experts.

11 As of yesterday, about 2,600 people have

12 logged in. Hundreds have taken our polls, and many

13 people are contributing comments.

14 So much for the statistics. Let me give you

15 a flavor for the technical information and comments. As

16 I mentioned, we'll be summarizing this in a report later

17 this summer, but for now, let me describe a few

18 highlights.

19 The technical papers included several

20 studies of various experimental procedures and

21 measurements that are being proposed or employed to

22 quantify the visual as well as cognitive demand of using

1   in-vehicle technologies.

2   There is a study of the capabilities of

3   drivers to time share the driving scene information along

4   with information from in-vehicle displays; a study of the

5   potential of collision avoidance warning systems to

6   prevent distraction related crashes; a study of how

7   speech based E-mail can affect driver attention.

8   There are also some papers describing some

9   of the basic technical issues, outlining them and

10   identifying some challenges as well, and there's also

11   some information on the European Community approach to

12   establishing principles for equipment design to minimize

13   distraction.

14   Most of the public comments have focused on

15   wireless phones. That's not surprising, given their

16   widespread use. We were hoping to hear more from users

17   of advanced technologies, such as navigation systems,

18   wireless Internet, in-vehicle night vision systems,

19   entertainment systems, but maybe those people are still

20   reading their instruction manuals. I don't know.

21   The public comments we received are

22   interesting and informative and range from the amusing to

1 the amazing to the tragic. Among the informative topics

2 was a report that Michigan has just begun to include a

3 data element for cell phone use in their police crash

4 report form, and in a minute you'll hear why that's an

5 interesting bit of advice when we have a speaker from our

6 National Center for Statistics and Analysis.

7 There's also a report from an automotive

8 journalist discussing complicated navigation system

9 controls and displays he has tested.

10 In the amusing category, a small gender war

11 has erupted as women write that the problem is giving men

12 more gadgets to play with, men who are not as good a[t]*

13 multi-tasking as women who are used to talking on the

14 phone while taking care of the kids and cooking dinner.

15 However, some men are writing that the

16 problem is women, such as the one who is reported to have

17 let go of the steering wheel to talk with her hands while

18 on the cell phone.

19 A number of comments in the amazing category

20 are reports of observing drivers watching a television

21 mounted on the dash or reading books while driving.

22 The tragic comments described personal

1   involvement in crashes, including fatalities caused by

2   drivers using wireless phones and in one case a

3   navigation system.

4   Of course, we've gotten a large number of

5   opinions about what needs to be done about the

6   distraction problem. Some of the opinions are in the

7   comments. Some are reflected in the polling questions,

8   which is a feature designed to stimulate and focus

9   discussion on various topics. Of course, it's not a

10   scientific representation of public opinion, but as

11   examples of the sentiment of the people who have taken

12   the time to respond to the questions, let me just mention

13   a few points.

14   About 75 percent of them believe it's not

15   safe to talk on a wireless phone while driving. About 50

16   percent of the people are concerned about all types of

17   driver distractions, not just cell phones. About 65

18   percent of the people believe drivers do a poor job of

19   deciding when it's safe to use in-vehicle technologies

20   while driving.

21   So if you haven't had time to check out our

22   Internet forum Web site, please do. We have flyers for

1   you on the table outside so you can get that and go right

2   to your computer and log in after you leave the public

3   meeting.

4   By the way, can I just get a show of hands?

5   Who here has logged into the Web site? I'm just curious.

6   It's working. Okay. Thanks.

7   And I wanted to thank you for coming and

8   thank all who contacted me seeking information and all

9   those who are here. Let's make this a safe, productive

10   session.

11   Thank you.

12   (Applause.)

13   DR. KANIANTHRA: Thank you, Mike.

14   Now, let me introduce to you the panel for

15   this public meeting. I will be the moderator for this

16   panel.

17   Other panel members are, starting from my

18   left, Rose McMurray. She's the Associate Administrator

19   for Traffic Safety Program in NHTSA.

20   Mr. Steve Kratzke, he's the Associate

21   Administrator for Safety Performance Standards, also in

22   NHTSA.

1   Mr. John Womack, he's the Senior Assistant

2   Chief Coun[se]l* in NHTSA.

3   And Mr. Jeff Paniati, he's the Deputy

4   Director of ITS Joint Program Office in the Federal

5   Highway Administration.

6   Mr. Dan Hartman. He is the Division Chief

7   of State Programs in the brand new Federal Motor Carrier

8   Safety Administration.

9   So these will be the panelists.

10   Now, let me introduce to you our Deputy

11   Administrator, Ms. Rosalyn Millman, who will be speaking

12   to you shortly. Ms. Millman joined NHTSA in October '99.

13   She also served as the Acting Administrator shortly after

14   joining the agency.

15   In her short tenure in NHTSA, she has earned

16   the reputation and our admiration as a strong advocate of

17   safety.

18   Before coming to NHTSA she served for six

19   years as a transportation economist for the Democratic

20   staff   of   the   Committee   on   Transportation   and

21   Infrastructure of the U.S. House of Representatives. Her

22   many legislative accomplishments are development of

1 significant policy provisions of the Transportation and

2 Equity Act for the 21st Century, including alcohol

3 impaired driving countermeasure grants, the Motor Carrier

4 Safety Assistance Program, and the ITS model deployments.

5 She has also served in the U.S. General

6 Accounting Office and the U.S. Agency for International

7 Development.

8 Ms. Millman graduated from the Pennsylvania

9 State University in 1983 and received her Master's Degree

10 in Economics and Public Policy from Princeton University

11 in 1988.

12 So let me present to you our Deputy

13 Administrator, Ms. Millman, for giving the opening

14 remarks.

15 (Applause.)

16 DEPUTY ADMINISTRATOR MILLMAN: Good morning.

17 Well, thank you all for coming. I'm very

18 pleased to be here today.

19 Driver distraction is perhaps the most

20 demanding highway traffic safety issue of the day. For

21 us at the Department of Transportation, working at the

22 National Highway Traffic Safety Administration, driver

1   distraction is a broad subject area that includes

2   everything from radios to fast food, to Internet

3   connections, and on-board navigation devices.

4   I was eager to participate in today's

5   meeting because we in the highway safety community must

6   take every opportunity to explore and share information

7   about this critically important subject. To meet with

8   the individual organizations and industries represented

9   here today is a special opportunity.

10   For more than three decades since its

11 founding in 1966, the National Highway Traffic Safety

12 Administration has grappled with many threats to public

13 safety on America's roadways. The challenges we

14 confronted over the years ranged from driver who are too

15 impaired by alcohol to drive safety or testing the

16 protective benefits of seatbelt systems.

17   Driver distraction is not a new problem.

18 NHTSA has been studying it and confronting it for many

19 years. Yet the driver distraction of today is far

20 different than in years past. It is related to

21 innovative technologies that are entering vehicles at

22 breathtaking speed, whether it is wireless phones,

1 Internet services, navigation devices, or sophisticated

2 new entertainment centers.

3 The driver distraction that traditionally

4 was a single device or stimulus is now a diffused and

5 often difficult to define set of issues. The stunning

6 speed from innovation to installation is so fast that

7 NHTSA's first awareness of a product or service may well

8 be when it is already being designed into or carried into

9 vehicles and used by drivers on the road.

10 The driver's responsibility is to operate

11 the vehicle safely. Distraction degrades driver

12 performance. Multiple distractions and more complex

13 distractions degrade driving performance even more.

14 For all driver distractions, the gathering

15 evidence is persistent and clear. Whether the

16 information comes from anecdotal reports, real world data

17 or research, we have a serious problem on our roadways

18 now and growing.

19 We cannot dismiss anecdotal reports although

20 they are unreliable sometimes. They are continual and

21 straightforward. Real world data is limited at this

22 point, and for years to come may not be robust enough to

1   measure distraction precisely or justify a particular

2   course of action.

3   But the real world data that we can assess

4   leads us to conclude that drivers' use of wireless phones

5   and other devices in moving vehicles is contributing to

6   crashes.

7   Research is further along. We're using many

8   tools and techniques that have matured over the years to

9   assess new forms of distraction. NHTSA's national

10   advanced driving simulator, which will come on line by

11   the end of this year, will provide unprecedented

12   opportunities for detailed, repeatable research on such

13   driver fitness issues as distraction and fatigue.

14   But all of the information to date from all

15   sources is consistent. Each separate story, each data

16   set, each research paper adds to the growing body of

17   evidence. Increasing distractions increase risk and, in

18   turn, lead to unintended consequences.

19   I am not aware of a single instance, not

20   one, of information that suggests distraction is not a

21   problem or that we have misunderstood it or that it is

22   lessening. Driver distraction in all its forms and from

1 all its sources is a real threat to the safety of

2 America's roads.

3   The threat is growing and growing fast.

4 Wireless phones are the fastest penetrating technology in

5 history. Just a few short years ago to see someone

6 talking on a wireless phone anywhere was still relatively

7 rare. Today a regular commute trip without seeing two,

8 three or more drivers talking on their wireless phones

9 while their vehicles are in motion is relatively rare.

10   Knowing of a traffic safety threat is often

11 easier than mitigating that traffic safety threat. Data

12 and information are clearly worrisome enough to recognize

13 risks and warn of their consequences, but they're not

14 nearly complete enough to support a given solution or

15 validate a particular action.

16   Further complicating the search for

17 solutions are the equivocal and sometimes vague public

18 arguments that obscure what must be good faith efforts to

19 confront distraction issues directly and effectively.

20 Here are five.

21   Assertion number one, the genie is out of

22 the bottle. The potentially distractive devices have

1 invaded the driver's domain so invasively attempts to

2 control them are now impossible or ill advised.

3   Well, my response is this problem will grow

4 larger and more complex. Waiting only increases the

5 difficulty we have solving it.

6   Assertion number two, eating fast food,

7 applying cosmetics and other in-car distractions also

8 present risks. So why aren't we worrying about them?

9   And my response to that is we have work to

10 do on all forms of driver distraction, but we should not

11 accept one risk because we have yet to address another.

12   Assertion number three, hands free equipment

13 will lessen or eliminate driver distraction. Hands free

14 is not risk free. NHTSA research and other research

15 clearly show that we must be concerned with manual

16 distraction, visual distraction, and cognitive

17 distraction.

18   Hands free, depending on the equipment, may

19 reduce both manual and visual distraction, but it will

20 not affect or reduce cognitive distraction. Some

21 researcher[s]* believe cognitive distraction is the most

22 problematic.

1   I have not seen any researcher studies that

2   suggest hands free devices will solve the distraction

3   problem. If anyone is aware of such research, NHTSA

4   scientists would love to review it.

5   Suggesting solutions for part of a problem

6   without addressing the whole problem may simply postpone

7   a better, more complete solution.

8   Assertion number four, existing inattentive

9   driving laws are adequate to deter drivers from the

10   inappropriate use of distracting devices. My response is

11   that NHTSA's preliminary review and assessment suggests

12   that existing laws are not adequate to limit

13   distractions from wireless phones or other electronics.

14   The nature of distraction related crashes is

15   that they often occur under conditions where the driver

16   may not be exhibiting overtly negligent behavior. They

17   occur when unexpected events happen.

18   Moreover, only about 50 percent of states

19   have such laws, and they are not enforcing them

20   uniformly.

21   And assertion number five, wireless phones

22   and other devices contribute to highway safety because

1   they allow people to immediately notify law enforcement

2   and emergency services and provide directions to drivers

3   unfamiliar with an area.

4   While these benefits are certainly real,

5   they in no way reduce the risks from a driver's use of a

6   wireless phone or other device in a moving vehicle, and

7   that is the threat we are addressing today.

8   Moreover, we obtain these same benefits if

9   the caller or user is not driving or if only 911 calls

10   are possible in moving vehicles.

11   Like many traffic safety challenges, solving

12   this one will require all interests to come together to

13   contribute to its eventual solution. All of those

14   involved in highway safety, whether in government,

15   industry or the public at large, are responsible for

16   raising and debating the important questions of driver

17   distraction.

18   The highway traffic safety community must

19   expand to include those who design, manufacture, and

20   service the computers, navigation systems, and other

21   devices used on the roads and installed in vehicles. You

22   can become one of our most important partners for years

1   to come.

2   Let me briefly mention a couple of areas

3   where we can work together. First, we all need good

4   quality and uniform data. Perhaps with the help of other

5   devices in the vehicle, such as event data recorders, we

6   can determine which device was in use when a crash

7   occurred.

8   Recognizing the private nature of much of

9   the data, we must use it only for statistical indicators

10   and for maintaining a database to help define the

11   problem.

12   We need states to work with us to develop

13   better data on driver distraction through a uniform data

14   collection methodology, and NHTSA will enthusiastically

15   assist you.

16   If manufacturers make their test and

17   evaluation data available to NHTSA, we can independently

18   evaluate the results. NHTSA can help manufacturers and

19   service providers publicize safe use information for

20   people who use these products.

21   We are experiencing a dramatic change in

22   driver behavior. It is hard to ignore that wireless

1   phone use is increasing at an exploding rate. We can

2   expect similar patterns for other devices. It follows,

3   and it is illogical to suggest otherwise, that increasing

4   distractions increase the risk and lead to unintended

5   consequences.

6   If we underestimate this potential risk to

7   highway traffic safety and do not moderate driver's use

8   of in-vehicle systems, the price may be very steep

9   indeed. We cannot wake up in 2004 or 2003 or even a year

10 from now and excuse the possibly scores or hundreds of

11 deaths or thousands of injuries because we failed to ask

12 the right questions and we failed to seek answers when we

13 had the opportunity. That opportunity is now.

14   This public meeting is one of the steps in

15 that journey. The Internet forum that we have underway

16 until August 11th is still another.

17   NHTSA's consumer information will now

18 include advice that growing evidence suggests using a

19 wireless phone or other device while driving can be

20 distracting, and drivers should not talk on the phone or

21 use these devices while their vehicles are in motion.

22   As effective as government might be in

1 providing this advice, it will not be enough to affect

2 significantly the problem or reduce the threat. Driver

3 distraction is a shared problem, and everyone has a role

4 in solving it. The federal government has a role, state

5 legislators have a role, as to safety organizations and

6 other traditional highway traffic safety partners.

7 Manufacturers and service providers whose

8 products and services create the credible and substantial

9 risks to highway safety have a special role. Like

10 vehicle manufacturers and many others, manufacturers and

11 designers of in-vehicle systems are responsible for

12 understanding and assessing their products' risk before

13 they become a major threat to the public.

14 Manufacturers and service providers are

15 responsible for understanding the safety implications of

16 their devices, designing features to mitigate risks, and

17 providing effective consumer information to resolve any

18 remaining risks.

19 The plethora of gadgets and gizmos that are

20 being designed into vehicles as standard equipment may be

21 the much bigger threat of tomorrow. In the interim, we

22 must learn more about the risks of today's devices,

1 including drivers' use of wireless phones in moving

2 vehicles.

3 Will we learn about those risks and deal

4 with them expeditiously or will we wait for rising

5 numbers of deaths and injuries? That is the challenge we

6 face today.

7 Thank you.

8 (Applause.)

9 DR. KANIANTHRA: Thank you.

10 We are going to now begin the formal

11 presentations from speakers. We have grouped first to

12 start with we'll present some of our work in NHTSA. To

13 start off we have Dr. Joseph Tessmer. He's a

14 mathematical statistician in our National Center for

15 Statistics and Analysis.

16 Jose.

17 DR. TESSMER: Good morning. Can we have the

18 first slide, please?

19 I'm with the Department of Transportation in

20 the Mathematical Analysis Division, and we have three

21 large electronic files that we use to analyze traffic

22 crashes throughout the country. Our three principal[]*

1   systems are the fatality analysis reporting system, and

2   under the national automotive sampling system, we have

3   two, the general estimate systems and the crash

4   worthiness data systems.

5   Today we'll be looking at those three

6   particular files and seeing what kind of information we

7   can get from these files related to driver distraction.

8   Next slide, please.

9   We've already talked a little bit about what

10   distractions are. Now, FARS turns out to be a census of

11   all crashes on public roadways with a death occurring

12   within 30 days of the crash. It was established in 1975,

13   and principally the thing that we have to realize with

14   this system is that it's based on police accident

15   reports.

16   Next slide, please.

17   We can partition distractions in two

18   different ways. We can talk about the non-technological

19   distractions that have always been with us, and that's

20   putting on make-up, that type of thing, and the

21   technological distractions, such as cell phones.

22   Next slide, please.

1   The non-technical distractions include

2   things like personal grooming, radios, playing with the

3   CD player, tape decks, children in the back seat having

4   a squabble, any kind of a conversation.

5   Next slide, please.

6   The technological distractions are making

7   cell phone calls and virtually any other nifty little

8   devices such as fax machines, on board navigation

9   systems.

10   Next slide, please.

11   Now, FARS does not collect any information

12   on the non-technological distractions. So there's a real

13   major question: are there more non-technological

14   distractions than the technological distractions?

15   And the answer is we just don't know. The

16   national data right now are not being collected on the

17   non-technological distractions, and therefore we really

18   can't do a comparison.

19   Next slide, please.

20   We do, however, collect data on the

21   technological distractions at least since 1991, but FARS,

22   remember, is based on police accident reports, and the

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1   police accident reports often do not report any

2   information on that type of distraction. That's the weak

3   link in the system.

4   Next slide, please.

5   The most recent data was 1998, and here we

6   have a total of 64 reports out of 56,000 drivers where we

7   noted some form of a technological distraction. Over

8   half of those, 33 of them, were in Oklahoma. Seven came

9   from California, but the important thing here is that 31

10 of the 50 states, including the District of Columbia,

11 don't collect any information at all on distractions.

12   Next slide, please.

13   Now, two states collect data: Oklahoma and

14 Minnesota. But there's a real difference in how these

15 two states collect their data. Oklahoma has several

16 fields along their police accident reports where the

17 officer can report a distraction, namely, a cell phone.

18   Minnesota, on the other hand, has two shared

19 fields, but with those shared fields there's also 29

20 other possibilities besides cell phone usage that can be

21 checked off. As a result, Oklahoma actually identifies

22 most of the cell phone related crashes in the country.

1   Next slide, please.

2   However, even when we look at Oklahoma,

3   there are a couple of problems. We can't determine in

4   Oklahoma whether or not the phone call was made before

5   the crash, at the time of the crash, or after the crash,

6   possibly calling a 911 number for assistance.

7   Next slide, please.

8   Carl Sagan basically pointed out that the

9   absence of evidence is not the same as the evidence of

10   absence, and that's the situation that we have here.

11   Just because we are not collecting data on distractions

12   involved with fatal accidents doesn't mean that they're

13   not there.

14   Next slide, please.

15   What we need basically in the fatal crash

16   situation is we need to have accuracy, reliability,

17   uniformity, and perhaps most importantly police training.

18   If the policeman on the beat, the investigating officers

19   do not make the appropriate note in their police accident

20   report forms, we're not going to pick it up in the

21   fatality analysis reporting system.

22   Next slide, please.

1   There is some good news, however. The

2   guideline for the minimum uniform crash criteria does, in

3   fact, recommend that each of the individual states

4   collects data on driver distractions.

5   Next slide.

6   The second large file system that we have is

7   the general estimate system. Now, this is a probability

8   sample of 55,000 police reported crashes across the

9   nation. It is, again, based on police accident reports,

10 and because of that it has the same basic problems that

11 the fatality analysis reporting system has. We just

12 aren't collecting the data because it's not being

13 reported by the police.

14   Next slide, please.

15   Now, NASS, the crash worthiness data system,

16 is a very different kind of a system. It is also a

17 probability sample of towed passenger vehicles, but the

18 important difference here is that these crashes are

19 investigated by 24 teams of trained crash researchers

20 throughout the country, and these crash researchers will

21 go out and actually inspect the vehicles. They will

22 contact personally any individual who was involved in the

1   crash, the investigating officers and that type of thing,

2   to solicit information. It is without doubt the most

3   detailed of all the electronic files, and in addition, it

4   over samples the newer vehicles.

5   The advantage of over sampling the newer

6   vehicles is that the newer vehicles are the ones that

7   have these new forms of distraction equipment within

8   them. So if we're going to pick it up, we're going to

9   pick it up here.

10   Next slide, please.

11   The CDS data collection system has been

12   collecting data on driver distractions since 1995. There

13   have been a total of about 18,000 unweighted crashes that

14   they've investigated, which represents about ten million,

15   11 million weighted crashes throughout the nation.

16   Slide, please.

17   The result is, raw data, is that 18 percent

18   of the crashes involve distractions and eight percent

19   involve crashes where the driver looked but did not see,

20   which could be related to driver distractions.

21   Now, there's also 28 percent of the crashes

22   here where the data just wasn't available to make a

1 decision.

2 And final slide, please.

3 Now, if we take that particular 28 percent

4 of data that wasn't known and we distribute it, we can

5 come up with somewhere between 20 and 30 percent crashes

6 involved in distractions, which is consistent with, you

7 know, all of our published numbers.

8 Question, sir?

9 DR. KANIANTHRA: Those of you who have any

10 questions and want to write on cards and pass it on, the

11 speakers will be available to answer later on so that we

12 can take up the questions at that time.

13 The next speaker is Dr. Riley Garrott. He's

14 the Chief of Vehicle Stability and Control Division in

15 our Vehicle Research and Test Center in Ohio.

16 Riley.

17 DR. GARROTT: Give me just a moment here to

18 get the computers changed over.

19 Good morning. I'm Riley Garrott, and I'm

20 the Chief of NHTSA's Vehicle Stability and Control

21 Division, which, as Dr. Kanianthra said, is in East

22 Liberty, Ohio.

1   I'm here today to talk about what research

2   NHTSA has done in driver distraction over the past few

3   years, what we are doing today, and some of what we

4   expect to do in the future.

5   My presentation today is going to be in four

6   areas. First of all, I'm going to say a bit about what

7   is the distraction problem, and I'm going to talk some

8   about what research we've done in the past, what we're

9   doing today and, as I say, finally, some, not all, of

10 what we hope to do in the future.

11   Start off, what is the problem? Here we see

12 an example. We have a lady who is drinking a can of

13 Pepsi, and she is changing a CD. Let me say this is not

14 a dangerous situation. This is being done on our test

15 track of the Transportation Research Center in Ohio. I

16 would not recommend that you do this on the road, but on

17 the test track this is a safe thing to do.

18   And you see as a result of this, the lady

19 goes out of the lane, has what we refer to as a lane

20 bust.

21   Now, as the previous speaker said, we know

22 distraction is a safety problem. We know it's been a

1   safety problem all along, and it has many sources. What

2   we are worried about is that new devices, new

3   communications devices, new information technologies, may

4   make the problem worse.

5   From a research point of view we have a

6   number of objectives when it comes to driver distraction.

7   One of the big ones is how do we measure it. As a

8   researcher, we cannot easily deal with things we cannot

9   measure, and measuring distraction is a very difficult

10   problem, and we have to figure out ways to measure it.

11   We are also very concerned about the effects

12   on safety of using wireless phones while driving, of

13   heavy truck dispatching systems. These are not just --

14   distraction is not just a problem in cars and light

15   vehicles. It's also a major concern in commercial

16   vehicles.

17   We are interested in what are the effects on

18   safety of navigation systems and some of the newer

19   technologies and multi-function systems that are coming

20   to the market today.

21   Here is some of NHTSA's past research in

22   this area. We've grouped it into three main sections.

1 We have the truck driver work load study, which was one

2 of the first ones that we did which involved heavy trucks

3 and the work load placed on drivers by devices.

4 We have the wireless communications study

5 and a variety of route navigation systems studies, and

6 I'll be talking about each of these in the next few

7 minutes.

8 The truck driver work load study was one of

9 our first studies of driver distraction. We had a couple

10 of goals in this study. One was to develop ways to

11 measure, assess driver work load, measure distraction,

12 and we wanted to conduct on-the-road research with

13 instrumented tractor/semi-trailers and professional truck

14 drivers.

15 This is video from the truck driver workload

16 study. We see this driver driving down the road. The

17 top two cameras show the forward view. The bottom, he's

18 dialing on the cell phone. You know, there we see the

19 driver as he's driving down the road talking on the cell

20 phone.

21 Now, what came out of this truck driver

22 workload study? The one thing we found is that it's much

1   easier to look at comparative risk than absolute risk.

2   It's much easier to say entering a destination into a

3   route navigation system is ten times worse than tuning

4   the radio, for example. It's very hard to get absolute

5   measures, such as entering destination into route

6   navigation system will create 57 crashes a year or

7   whatever.

8   We did develop a set of workload assessment

9   tools, things like looking at where the driver has got

10   his eyes pointed, lane tracking techniques that have been

11   widely accepted and have been the foundation of much of

12   our subsequent research.

13   Our next study I'm going to talk about is

14   our wireless communication study, and this resulted in

15   what I will refer to as the wireless communications

16   report. It's this document here, which is being

17   distributed. It's an investigation of the safety

18   implications of wireless communications in vehicles, and

19   this assessed the then current state of knowledge about

20   cell phone use while driving.

21   This study came to several conclusions which

22   I'm going to summarize here. First of all, does cellular

1 telephone use while driving increase the risk of a crash?

2 And the answer is, yes, at least in some cases.

3 The second question was will crashes likely

4 increase with the increasing number of cellular

5 telephones in the fleet, and the answer was, yes, it

6 will. They will.

7 How big a safety problem are we looking at?

8 How many crashes per year are we talking about? As

9 discussed by the previous speaker, there is insufficient

10 data. We cannot say how many crashes are likely to

11 result.

12 And the report also says that conversation

13 itself is the most prevalent single behavior associated

14 with cellular telephone related crashes. What this means

15 is hands free phones will not totally solve this problem.

16 The report had some recommended actions,

17 recommended improved data collection, and reporting with

18 appropriate training of enforcement personnel.

19 Enforcement personnel must know what to look for or else

20 we cannot pick it up in our crash data files.

21 It recommended that we conduct research

22 about how drivers use cell phones, in what situations

1   they use cell phones. It recommended that we perform

2   benefits analysis, cost-benefits analysis of cell phone

3   uses.

4   It recommended that we encourage states to

5   enforce their reckless and inattentive driving laws, and

6   it recommended that we educate consumers about safe use

7   of cell phones while driving.

8   Now, I'm going to turn to the route

9   navigation system studies. The first of these is the

10   TravTek study. What was done here -- this was back, oh,

11   about '92 -- we installed route navigation systems in 100

12   rental vehicles in the Orlando Florida area. These

13   vehicles were driven approximately a million miles over

14   a ten month period. It is important to mention that

15   these vehicles had destination entry locked out while the

16   vehicle was in motion. You could not enter a destination

17   while the vehicle was traveling.

18   What we found from the TravTek study was

19   that the TravTek systems did not degrade driving safety.

20   The report said they were safety neutral in congested

21   roads. So they didn't really have any impact if they

22   were on a highly congested highway, and they were safety

1 neutral to slightly safety positive. So they were good,

2 a little bit good on uncongested roads.

3   More recently, we've looked at the question

4 of destination entry while the vehicle is in motion.

5 Many after market commercial navigation systems allow

6 destination entry while the vehicle was in motion. For

7 this study we purchased four commercially available route

8 navigation systems. Three of them use visual manual

9 methods for destination entry. One is controlled by

10 voice. You talk to it and tell it where you want to go.

11   Then we did comparison of destination entry

12 of route navigation systems with phone dialing and radio

13 tuning.   From this study we also looked at the

14 differences in performance between younger subjects,

15 under 35, 35 years old and under, and older subjects 55

16 years old and above.

17   Here we see an example of a subject entering

18 a destination into a route navigation system while

19 driving. This is being done on the test track at the

20 Transportation Research Center. There is no risk to the

21 driving public or to the subject sine this is being done

22 on a test track, but here you see we have another lane

1   bust here as the subject enters the destination in an

2   inadvertent departure, partial departure from the lane.

3   The results of this study were that visual

4   manual destination entry while driving, in our opinion,

5   is ill advised. We don't think the systems should allow

6   it.

7   The voice recognition technology where you

8   told the system where you want it to go was much less

9   distracting than the visual manual destination entry.

10 Older drivers had much more trouble with the visual

11 manual destination entry than did the younger subjects,

12 much tougher for them.

13   However, for the voice commanded system, it

14 didn't have any effect. The older and younger subjects

15 did equally well in the use of that system.

16   The next study we did was involved in

17 something call the 15 second rule, and let me just say a

18 little bit about what the 15 second rule is. The 15

19 second rule is a recommended practice for what functions

20 should be available to the driver for route navigation

21 systems while the vehicle is in motion, and this is being

22 developed by the Society of Automotive Engineers' Safety

1 and Human Factors Committee. This rule or recommended

2 practice is intended to provide guidance to designers as

3 to what route navigation system functions should be

4 available to drivers while the vehicle is in motion.

5 Like all SAE rules and recommended

6 practices, it is developed by consensus between

7 researchers and designers.

8 So our study evaluated the proposed SAE

9 recommended practice. Basically we were looking at

10 destination entry under this, and because we knew from

11 the previous study that older subjects had a tougher

12 time, we limited ourselves to older subjects for this

13 study.

14 Now, the 15 second rule consists of a test.

15 You take the vehicle and you park it, and then you have

16 a subject use the system, and they perform what -- this

17 is what's called a static test. They use the system, and

18 we time how long it takes them to perform it.

19 Okay. So here we see static vehicle. The

20 subject is entering a destination into the route

21 navigation system, and we have the time it takes them to

22 do it, and the 15 second rule says this should not take

1   more than 15 seconds for things that are accessible to

2   the driver while the vehicle is in motion.

3   As you can see, this particular task

4   destination entry here is taking a lot longer than 15

5   seconds. It, in fact, take 68 seconds to perform. So

6   this would not pass the 15 second rule criteria.

7   Now, the big concern we have with the 15

8   second rule is that some drivers can do what we call

9   chunking. Chunking means that when you're doing this

10 task, you look at the device, route navigation system or

11 whatever for a couple of seconds, and then you look at

12 the road for a couple of second, and then you look back

13 to the device, and then you look at the road.

14   Now, it's not clear to us that you can't

15 take a task that takes a long time to do, minutes if

16 you're doing chunking. Chunking is a good thing because

17 you're looking at that road frequently.

18   On the other hand, if you look away from the

19 road for a full 15 seconds at 60 miles an hour, you've

20 gone about a quarter of a mile. You can get into big

21 trouble in a quarter of a mile not looking at the road.

22   So our belief is that a static test is not

1 sufficient to identify tasks of significant distraction

2 potential, and so we feel that the 15 second rule needs

3 some revision.

4 Now, I guess I should say the 15 second rule

5 passed the SAE Safety and Human Factors Committee by the

6 slimmest possible margin, and it then went on to the next

7 level of approval at SAE which turned it down as too

8 controversial. So this rule has been sent back by SAE

9 for revision, and so it's not clear what's going to

10 happen to this rule.

11 Okay. Now I'm going to turn to the work

12 that NHTSA is currently doing on driver distraction.

13 First, I want to talk about the auto PC test track study.

14 Now, this is a study that we're doing cooperatively

15 between NHTSA and Transport Canada. You'll be hearing

16 from Transport Canada in a little bit.

17 What we're doing here is we're comparing

18 voice and non-voice technologies for a number of tasks

19 that you can do on your auto PC, such as phone dialing,

20 radio tuning, and E-mail retrieval. We hope to determine

21 how drivers learn to use this complex, multi-function

22 technology.

1   Here we see the subject modeling an eye

2   tracker, which we are getting from Transport Canada for

3   this testing, and what we'll be doing is we'll be

4   measuring driving performance on a test track and driver

5   eye glance behavior while using this system, and we hope

6   that this study will help us determine what tasks are

7   appropriate for drivers to access while using public

8   roads.

9   The other study that's currently underway is

10 the wireless telephone interface study. This study,

11 we're looking at different cell phone interfaces. Here

12 we have a standard hand-held cell phone that the driver

13 is using to make a call, and of course, we've all seen

14 this many times, and then we will be comparing this to

15 hands free cell phones where the driver still has to push

16 buttons to dial, but his hands free while talking.

17   Finally, we're going to be looking at the

18 totally hands free cell phone based on the auto PC where

19 the driver dials by giving voice commands and then talks

20 hands free. So there's no use of the hands here and, you

21 know, just talking to control the device and do the

22 conversation.

1   Now, this is what we call a naturalistic

2   study. What we do is we give instrumented vehicles to

3   members of the general public to drive for six-week

4   periods, two weeks with each of the interfaces. Drivers

5   drive these vehicles when they want to, where they want

6   to. They can talk on the phone any time they want to or

7   not if they wish. It's totally their choice. So it's

8   naturalistic in the sense that we don't tell them what to

9   do, and this is on the road though. This is not on the

10   test track.

11   What we hope to accomplish by this study is

12   to compare the distraction potential of different

13   interface designs to see if one is safer than another.

14   We hope to determine if people have different use

15   patterns for different interface designs. We are quite

16   concerned that people may be more willing to use hand

17   free technology in heavy traffic or difficult driving

18   situations.

19   And we hope to, in general, determine the

20   conditions under which drivers are willing to use

21   wireless phones.

22   Now I'm going to talk some about our

1 upcoming research, some of our planned upcoming research,

2 and a major portion of this future research will be

3 performed on the national advanced driving simulator,

4 NADS.

5 The national advanced driving simulator will

6 become operational later this year. It is an important

7 tool for studying such subjects as driver distractions

8 for two major reasons.

9 First of all, we are very limited as to what

10 testing we can perform either on public roads or on test

11 tracks by safety considerations. We must not endanger

12 either the motoring public or our test subjects in our

13 testing. On NADS we can do many more tests, much more

14 sort of dangerous tests without endangering anybody

15 because it's just a simulator.

16 Secondly, research on the NADS is very

17 repeatable. We can arrange to have every subject drive

18 down a road and go around a curve and when you're halfway

19 around the curve, the phone rings. We can do that on

20 that. You can't do that in real life.

21 We have a series of projects planned for

22 NADS in the driver work load and distraction area. We're

1 going to be looking at workload and distraction of

2 wireless communications devices, such as cell phones.

3 We'll be looking at in-vehicle information systems, like

4 navigation systems and the auto PC, and we're hoping to

5 develop some research tools. We need better methods, and

6 we need standard methods on the NADS to measure driver

7 distraction. We need standard test methods, procedures

8 and test courses, and we'll be trying to determine the

9 distraction due to cognitive distraction.

10   Well, that concludes what I wanted to say.

11 I'm open to questions.

12   Thank you very much.

13   (Applause.)

14   DR. GARROTT: Yeah, this report is

15 available.

16   DR. KANIANTHRA: This report should be

17 available this afternoon for those who would like to have

18 a copy. We will also be posting it on our Internet forum

19 so you can have this -- oh, NHTSA Web site. Sorry.

20   Riley, let me lead off with a question. Do

21 the subjects know that they are being recorded when they

22 are doing this?

1   DR. GARROTT: Yes, they do. For ethical

2   reasons we have to tell them. We try not to make a big

3   deal of it, but we do have to tell them. So it's not

4   totally natural.   It's a little bit affected by

5   observation. No way out of it.

6   DR. KANIANTHRA: Okay. Thank you very much.

7   Thank you.

8   I apologize for people who are standing in

9   the back who don't have chairs. Are there any NHTSA

10   staff who can afford to go to 2201? We have this

11   proceedings you can watch on the television.

12   By the way, it's not being taped so don't

13   worry about it, but you can watch it live. There are 25

14   vacant seats in 2201, and the reception is perfect. So

15   you can watch it there.

16   Let's move on to the next speaker. The next

17   one is going to be Dr. Ian Noy. He's Chief of

18   E[rg]onomics* Division in Transport Canada.

19   Ian.

20   DR. NOY: Thank you very much, Joe.

21   Let me first say how pleased I am to be here

22   despite the fact that I landed in Washington three

1   o'clock this morning. The reason I am very pleased to be

2   here is because I think the topic of this public meeting

3   is very timely and very, very important, and what I would

4   like to do is describe a little bit about how we

5   conceptualize the problem of driver distraction and

6   briefly describe a number of studies that are underway or

7   have been completed at Transport Canada on the subject.

8   Next slide, please.

9   Let me begin by showing this slide. Human

10   causes are by far the most prevalent causes of

11   collisions, probably contributing to over 90 percent of

12   traffic accidents.

13   These data come from a study that was

14   conducted in Indiana in the mid-'70s, and although the

15   data are quite dated at this point, this study, to my

16   knowledge, is probably the most comprehensive study of

17   motor vehicle collision causes, and I put up this study

18   for a particular reason, because I would like to go into

19   it a bit more.

20   Can I have the next slide, please?

21   The Indiana researchers have tried to study

22   the incidence of different human direct causes in

1 collisions, and they have developed this framework for

2 categorizing or classifying human direct causes. What is

3 noteworthy is that there are two categories of human

4 causes which account for the vast majority of human

5 causes of collisions.

6 Decision errors account for about 40 percent

7 of collisions, and recognition errors account for about

8 50 percent. What is relevant to this public meeting, I

9 think, is the recognition errors because they include

10 inattention, internal distraction, external distraction,

11 improper lookout, and so on.

12 Next slide, please.

13 The Indiana researchers also differentiated

14 between distraction and inattention.

15 Can I have the next?

16 Distraction is defined as a shift of

17 attention away from the driving task for a compelling

18 reason, and as previous speakers have alluded, there are

19 different forms of distraction.

20 Here I indicate three possible forms of

21 distraction. The first one is a task which is so

22 compelling that the driver seems to be locked onto the

1   task and has difficulty shifting back to the driving

2   task.

3   Another form of distraction is inappropriate

4   displays, for example, loud or flashy displays, that

5   capture attention because they are overly salient.

6   And finally, there are or not finally, but

7   another form of distraction are cues which elicit an

8   almost automated response or behavior on the part of

9   drivers. For example, ringing of the telephone.

10   Research in Japan and Europe has indicated

11   that drivers tend to respond to the ring of the telephone

12   within one or two rings. In other words, people are

13   compelled to answer the telephone regardless of what they

14   are doing in the vehicle, and this is a behavior that is

15   carried over from the street, but may not be appropriate

16   in the vehicle.

17   Inattention is defined as a shift of

18   attention away from the driving task for a noncompelling

19   reason. I will not talk about inattention because it is

20   not really relevant to the meeting here, but it is also

21   important to understand that inattention is something

22   that, again, may be increased with the advent of new

1 technologies in vehicles.

2 Next slide, please.

3 The study in Indiana reported that nine

4 percent of human direct causes are due to internal

5 distractions, and they have identified some of these,

6 including event in a vehicle, adjusting the radio tape

7 player, adjusting the windows and vents, and so on.

8 In the mid-1970s, the driver interface was

9 a very simple interface, and I think the data that are

10 presented in the Indiana accident investigation report

11 reflect the sophistication of the driver interface.

12 Can I have the next slide, please?

13 Advanced technologies that are being

14 introduced into modern vehicles, however, introduce many

15 new potential sources of distraction as we have heard

16 already, including navigation system destination entry,

17 map and other complex visual displays in vehicles, in-

18 vehicle office tasks, including E-mail and Internet, in-

19 vehicle entertainment, travelogue, CD, TV, and so on.

20 Warnings. Warnings are another category of

21 distraction that we must investigate the potential for

22 warnings to actually distract the driver.

1   Heads-up displays, and we have already heard

2   quite a lot about wireless communication, and I'm sure

3   we're going to hear more about that particular topic.

4   I put up this schematic of the driving

5   information processing system in order to make a number

6   of important points which relate to how we conceptualize

7   the problem of distraction. This is a very simple model,

8   and researchers in the audience will immediately tell me

9   that there are more elaborate, more complex models that

10   are available today, but I think this serves to make some

11   important principles.

12   The   information   processing,   driver

13   information processes can be thought of as a sequential

14   process involving three principal steps: perception,

15   mediation, and action.

16   The yellow blocks here represent elements of

17   the driver's cognitive or information processing system.

18   At any moment in time, the driver -- many information

19   sources impinge on the driver, including information from

20   in-vehicle displays, information that is available from

21   direct view of the road environment, pedestrians, and so

22   on, and the driver has to process this information.

1   This is a very dynamic process because once

2   the driver has initiated some action, the vehicle

3   responds, and the whole world changes, requiring a repeat

4   of this cycle.

5   May I have the next slide, please?

6   What's important to understand about human

7   information processing is that it is very limited.

8   Drivers, and this is a simplification, but it seems to

9   hold as a first approximation. It seems to be a very

10 valid point. Drivers can only pay attention to one thing

11 at one time, and they are very limited. They are limited

12 in the amount of information they can process in a unit

13 time.

14   And so what drivers do in order to cope with

15 multiple demands for information processing is they need

16 to switch attention between the different sources, and

17 this is the purpose for this particular block here.

18   It is a gateway. It is kind of like a

19 searchlight which is shifting attention to various

20 information sources in order to allow them to be

21 processed through this channel.

22   Next slide, please.

1   When drivers are engaged in processing

2   information that is not directly relevant to the driving

3   task, we say the driver is distracted, and as Dr. Garrott

4   has indicated, drivers are able to do this to some extent

5   quite safely in the vehicle. We all know this. We have

6   all experienced that we are able to perform a non-driving

7   related task in the vehicle quite safely.

8   But we also know that if prolonged or if it

9   occurs at an inappropriate time, distraction can reduce

10   situation awareness and result in delayed driver

11   reaction. So the real question is: how do we quantify?

12   How do we characterize distraction to understand what

13   safety implications are involved with the various

14   technologies with which we are dealing?

15   Can I have the next slide?

16   This slide indicates some of the critical

17   parameters that are associated with the distracting task,

18   I guess, if you think of it in that way.

19   The timing of the distraction in relation to

20   the driving context; the duration of the distraction; the

21   ease of returning to the driving task; the load on

22   working memory imposed by the in-vehicle task; and also

1   the physical location of the source of distraction.

2   There are possibly many other factors that determine the

3   form of distraction and the importance of the

4   distraction, but these are simply some.

5   We don't necessarily understand these very

6   well, nor do we know how these factors interact. We are

7   hopeful that this public forum and the forum and the

8   research that NHTSA is planning to do on driver

9   distraction will help us understand these factors more in

10   depth.

11   What I am going to do now is talk a little

12   bit about Transport Canada research and in distraction.

13   I'm going to be describing three studies. We've done

14   some more studies, but I think I want to concentrate on

15   three studies.

16   May I have the next slide, please?

17   Okay. The first study, this was done a

18   number of years ago. It was a simulator study involving

19   three participants. We had we called them auxiliary

20   tasks. These are in-vehicle visual tasks presented on a

21   monitor on a dash.

22   We used two different visual tasks, one a

1 perception task and a visual memory task. We manipulated

2 both the driving and in-vehicle task difficulty, and we

3 measured looking behavior, driving performance, and

4 driver work load.

5 Next slide, please.

6 The conclusions. Can I have the first one?

7 These are the main conclusions. The report

8 is quite detailed, and if anyone has an interest, by all

9 means, we can make this report available.

10 First, driving task difficulty was the

11 predominant factor affecting the tension and performance

12 variables. Drivers tended to adjust their looking

13 behavior and their control of the vehicle in a way to try

14 to maintain a certain level of driving performance.

15 Next.

16 I have covered that.

17 However, despite what I would characterize

18 as adaptive behaviors, drivers understand inherently that

19 driving is a very important task or the primary task, and

20 maintaining performance -- I'm sorry. Go back, please --

21 maintaining performance on the driving task is paramount,

22 and so they have modulated or they adapted their looking

1   strategy to try to achieve this, but despite these

2   adaptive behaviors, distraction from in-vehicle tasks

3   caused driving performance to deteriorate.

4   Next slide, please.

5   And here we see some of the data. For

6   example, this is a part of dwell time against driving

7   load, and you can see when the road was straight, the

8   average amount of time per fixation on the in-vehicle

9   task was about 1.4 seconds, but when the driving became

10 more difficult, such as in sharp curves, the dwell time

11 fell to about one second, and you can see that this is a

12 strategy that drivers adopted in order to try to cope

13 with the increasing demand of the driving task.

14   Next slide.

15   These are look frequency data, again, for

16 the same sort of conclusions. During the straight

17 sections drivers looked at the display on an average once

18 every two and a half seconds, and when the driving became

19 more difficult, they only looked once every five seconds.

20   If we look at the driving performance, these

21 are performance ratios. So they are relative to control.

22 Values above one represent an increase in the particular

1   variable under conditions in which the driving was time

2   shared with an in-vehicle task.

3   We can see, for example, that TLC stands for

4   time to line crossing. We can see there was about 15

5   percent reduction in time to line crossing, which

6   increases the probability of lane busts, as was

7   characterized earlier.

8   Standard deviation of lane position

9   increased by about 25 percent, indicating more erratic

10   driving, more drifting in the lane.

11   We also see the standard deviation of

12   velocity increase significantly, as was headway. Now,

13   the increase in headway is interesting because this is a

14   strategy adopted by the drivers in order to try to cope

15   with the increasing demand. So they basically fell back

16   from the vehicle they were following in order to be able

17   to try to perform both tasks at the same time.

18   But, again, I emphasize that despite

19   adaptive behaviors, driver performance variables

20   deteriorated.

21   Next slide, please.

22   A study that is currently underway as we

1   speak as a study looking at the effects of cognitive load

2   on driver visual behavior, you've seen some of the

3   instruments that we use for eye movement. This is a

4   study in which it is what Wiley would call a completely

5   hands free, in other words, there's no dialing; there's

6   no hand manipulation whatsoever.

7   This is an on-road study in Ottawa.

8   Next slide, please.

9   Okay. Drivers are going to be using the

10 hands free essentially, speaker and voice communications,

11 and performing mental arithmetic tasks of varying

12 difficulty, and we are primarily interested in analyzing,

13 recording eye movement data because we believe very

14 strongly that understanding eye movements is the key to

15 understanding distraction.

16   If you are not looking at something, you're

17 not going to see it. And this can have an effect on

18 situation awareness and risk of collision.

19   We are measuring visual scanning of the

20 environment, mirror checking, driving performance

21 variables, rating of work load safety and working memory.

22   Next slide, please.

1   Now our eye movement recording devices

2   essentially provide -- I don't have a videotape to show

3   you--but basically if you run the videotape you can see

4   at any frame where the driver is fixating by this cross-

5   hair. So if this was playing, you'd see this cross-hair

6   jumping around from place to place, depending on where

7   the driver was fixating, on which object the driver was

8   fixating.

9   Next slide.

10   Now, I don't have the data to present to you

11   because the data are still being collected, but I do want

12   to show you some of the data that we collected during the

13   pilot work to this study.

14   We are going to fix the cross-hairs at the

15   visual horizon. So this point is going to be fixed, and

16   what you see in the blue line here represents the

17   smallest area that contains 90 percent of visual

18   fixations.

19   Now, this particular slide represents visual

20   scanning under normal driving conditions. So you can see

21   here that the scanning range is quite wide, and it also

22   includes both a near field and a far field.

1   Next slide, please.

2   When drivers were using the cell phone, you

3 can see that most of the fixations are now concentrated

4 in a very small area relative to normal driving, and not

5 only that, but the actual location of fixations tend to

6 be fairly close to the vehicle as opposed to the far

7 afield.

8   Again, I would like to emphasize that these

9 data represent three subjects in a pilot study, and we

10 cannot consider these data to be valid, but these are the

11 kinds of things that we are looking at in our current

12 study on driver distraction.

13   And finally, the study that we are planning

14 to do, which we haven't yet begun, is a study which is

15 motivated by the 15 second rule that you've heard about

16 earlier and involves information chunking. We believe

17 that task structure, the structure of the in-vehicle task

18 is a very important parameter.

19   If the task, for example in the extreme, is

20 a continuous tracking task in the vehicle, you can see

21 how that would be very difficult to time share with

22 driving.

1   On the other hand, if it was a task that

2   could be divided into very simple, discrete steps, that

3   task can be fairly easily time shared with driving, but

4   real world tasks from advanced technologies fall

5   somewhere in between the two, and it is important to

6   understand how this chunking characteristics affects

7   distraction.

8   We're going to be using a number of

9   different kinds of in-vehicle tasks to study how well

10   drivers can actually time share between the in-vehicle

11   test and the driving test. You know, does the structure

12   of these tasks compel drivers to fixate longer than they

13   would under different, you know, structural conditions?

14   We're going to be using a destination entry

15   task, reading E-mail, searching displays visually and

16   interacting with voice communication.

17   The critical issues are can tasks be

18   chunked. How finely? What is the effect on visual

19   attention? What is the time penalty associated with

20   chunking? In other words, if you have to divide, you

21   know, time share the in-vehicle task with driving, how

22   much penalty do you pay in terms of time and how does

1 chunking affect situation awareness and ultimately

2 safety?

3   Thank you very much.

4   (Applause.)

5   DR. KANIANTHRA: If I may lead off with the

6 question[]*, do you draw a distinction between adapting

7 and learning or they are one and the same?

8   DR. NOY: Well, I think they are related,

9 but I think drivers adapt naturally. The more experience

10 they have with a technology, the more they are able to

11 internalize or develop an expectation of the function of

12 that technology and modify their behavior in a way that

13 makes more effective use of the technology.

14   Learning is a process of internalizing

15 knowledge about functional characteristics of whatever

16 systems you are dealing with, and clearly these are very

17 interrelated, but they are not really the same.

18   DR. KANIANTHRA: So do you see a difference

19 between some of the new technologies which are coming out

20 right now versus, for example, the [wiper]* controls,

21 which we have difficulty, I have difficulty when I rent

22 a car, but I adapt to it or learn from using it, and

1 within a few miles I get used to where they are and have

2 no difficulty.

3 But do you distinguish the difference

4 between the technologies which are coming out today

5 versus some of those types of system like the [wiper]*

6 controls?

7 DR. NOY: I do actually. I think the

8 technologies that are coming out today are very much in

9 the information technology area, and I think they place

10 a great amount of load on working memory, on the

11 cognitive processes.

12 Being able to control vehicle devices, such

13 as wipers and the radio and so on, yes, they are

14 distracting. Yes, they demand a certain amount of

15 attention, but they are not -- they are a different form

16 of distraction, and I talked before about there being

17 different forms of distraction.

18 I think the consequences of different forms

19 of distraction may, in fact, be different, and I think we

20 do not understand that well enough. We need to explore

21 and investigate these things in more detail.

22 I think the proliferation, and the reason we

1   are very concerned about it in Transport Canada is

2   because we see a very rapid proliferation of new sources

3   of information in the vehicle, information that requires

4   the driver to process information at the same time as

5   they're driving, and this is something that is a bit more

6   difficult to study because it is difficult to really get

7   into the mind.

8   You can study manual task sharing of the

9   driving task and performing other manual tasks in the

10   vehicles. It is much more difficult to try to understand

11   what the driver is doing mentally and how they time share

12   and switch attention between the in-vehicle task.

13   So I think there are fundamental difference

14   between different forms of distraction, which we do not

15   necessarily understand, and I think the information

16   processing is a silent version of distraction that

17   demands that we pay a lot more attention to this area in

18   view of the proliferation of new technologies in the

19   vehicle.

20   DR. KANIANTHRA: Thank you.

21   MS. McMURRAY: I have a question for any of

22   the researchers that have preceded this morning. On the

1 issue of delayed reaction, we know that in looking at

2 varying levels of blood alcohol content with alcohol and

3 impaired driving that the more blood alcohol

4 concentration, the more degraded the driving task

5 becomes.

6 Do we know about reaction time and delayed

7 reaction time responding to an imminent hazard when a

8 person is on a cell phone or otherwise distracted by

9 either a technological distraction or a nontechnological

10 distraction?

11 DR. NOY: I am not sure I can speak to

12 nontechnological distractions, but, yes, there are

13 research studies available in the literature. We talk

14 about driver reaction time. For example, when driving is

15 time shared with telephoning, you know, use of cellular

16 telephone in the vehicle, and for the most part they do

17 show an increase in reaction time. There is a delayed

18 response when drivers are using the telephone while

19 driving.

20 Our own study looked at driver reaction time

21 and has concluded this to be the case. So I think it is

22 fairly well established driver reaction time does

1   increase when driving is time shared with an in-vehicle

2   task, such as telephoning.

3   Does that answer your question?

4   MS. McMURRAY: Well, and is the nature of

5   the imminent hazard -- does that affect reaction time,

6   and does the type of distraction -- is that related or

7   correlated with the imminent hazard? Do some events, for

8   example, take longer for the driver to react to because

9   they're on a cell phone than another event?

10   DR. NOY: I'll speculate on that because I

11   can't now bring up a study that's particularly relevant,

12   but yes. I think the answer to that question is yes.

13   For example, if an event in the driving

14   environment is very conspicuous and very hazardous,

15   drivers will tend to react much more quickly. If it's an

16   event that requires a certain amount of judgment on the

17   part of drivers where they have to reorient to the

18   driving task, they have to maybe estimate closing rate,

19   and they have to make more difficult judgments about the

20   driving environment, then I think the answer is, yes,

21   their reaction time will be delayed proportionately.

22   But I can't conjure up a study that I can

1 cite that will corroborate that.

2 MR. HARTMAN: Ian, I have just a general

3 question. To just scan the list of speakers, it appears

4 that you may be, I guess, our only Canadian speaker today

5 so I need to ask you this question.

6 Recently a couple U.S. jurisdictions, local

7 jurisdictions, have banned the use of cellular phones,

8 use in automobiles. Have there been similar bans in

9 Canada?

10 DR. NOY: Not yet, not yet. There are some

11 provinces that are looking into this. For example,

12 Alberta and Quebec. At the present time, in fact, it has

13 now been a year now. Departments of Quebec have

14 conducted or are in the course of conducting and

15 analyzing data, epidemiological data, and everyone is

16 more or less waiting for the results of the study to

17 decide about, you know, the possibility of maybe

18 outlawing the use of particularly hand held telephones in

19 Canadian provinces.

20 In Canada we have a joint federal-provincial

21 body called CCMVA, the Canadian Council of Motor Vehicle

22 Administrators, and information which is of national

1 || interest and can be used for developing national policies

2 || are discussed and agreed.   This is the form for

3 || discussing national policies in Canada.

4 || There are a number of various committees

5 || that fall under CCMVA, and one of those committees is

6 || looking at cellular telephones, but as I say, they are

7 || waiting for the results of the Quebec study to decide how

8 || to deal with this, but I also know that departments of

9 || Alberta and also British Columbia, I believe, have made

10 || some announcements indicating they are certainly thinking

11 || seriously about possibly banning the use of hand held

12 || cellular telephones in Canada.

13 || And, you know, from the federal government

14 || perspective, we are looking at it because a lot of these

15 || devices are now being sold as original equipment in the

16 || vehicle, and so this falls within federal jurisdiction in

17 || Canada, and so we need to at the federal level look at

18 || this problem.

19 || MR. WOMACK: I have a question about the

20 || visual field that you're examining in your study. Will

21 || your study be looking at the relative effects of

22 || different types of in-vehicle technology, thinking

1 particularly about the use of Internet information during

2 a driving task?

3   DR. NOY: The study that's underway right

4 now is only looking at cognitive load and its effect on

5 speech communication basically and its effect on the

6 visual field.

7   But Dr. Garrott earlier mentioned the joint

8 interest we have with NHTSA in looking at auto PC, and

9 we're going to be using essentially very similar

10 techniques to look at visual behavior and how it changes

11 as a function of different types of technologies in the

12 vehicle, including Internet, E-mail access, and various

13 other technologies in the vehicle.

14   PARTICIPANT: (Inaudible.)

15   DR. NOY: Public transit? I'm not --

16   THE REPORTER: Could you repeat the

17 question, please?

18   DR. NOY: He was asking about studies that

19 involve public transit operators and distraction, and I'm

20 not aware of any research in Canada in that area.

21   DR. KANIANTHRA: Thank you.

22   PARTICIPANT: (Inaudible.)

1   DR. NOY: Yes. This is Zwalen?

2   PARTICIPANT: (Inaudible.)

3   DR. NOY: Rockwell.

4   THE REPORTER: Again, what is the question?

5   DR. NOY: The relationship between our data

6   and studies that have been conducted at Ohio State

7   University.

8   Yes, we're familiar with those studies. I

9   think generally the results are very similar. I'm not

10   sure that Dr. Rockwell and I would agree on interpreting

11   the data that we collect. I think, for example, in our

12   studies we found that the driving task difficulty was the

13   single most important factor affecting fixation duration.

14   Obviously look frequency depends on what the

15   driver is trying to accomplish in the in-vehicle task,

16   and so the relationship between dwell time and fixation

17   frequency is a bit of a tradeoff there. You know, the

18   more you look per glance, the less times you have to

19   look, and I wouldn't want to characterize Dr. Rockwell's

20   interpretation of similar data, but this is our

21   interpretation.

22   There's a need to look at the relationship

1 between dwell time and glance frequencies, and the

2 results of research on our visual attention really

3 reflect the demands of primarily the driving task, but

4 also the difficulty and complexity of the in-vehicle

5 task.

6   PARTICIPANT: (Inaudible.)

7   DR. NOY: I think that very much depends on

8 the driving environment. Our studies are conducted in

9 busy downtown streets where there is a demand to really

10 look quite widely to pick out potential hazards in the

11 environment, whereas, you know, studies conducted on the

12 highway, for example, yes, I think that would show it.

13   PARTICIPANT: (Inaudible.)

14   DR. NOY: Right, yeah. I think that

15 accounts for the difference.

16   DR. KANIANTHRA: Thank you.

17   (Applause.)

18   DR. KANIANTHRA: I would add those who would

19 like to ask questions to please put it down on a piece of

20 paper and pass it forward because we have to transcribe

21 what's going on here. So, please, and we don't want to

22 get into a back-and-forth dialogue here. We will not

1   have the time to take that kind of a situation.

2   The next speaker is going to be Frances

3   Bents. She is the Vice President and General Manager of

4   Research -- oh, I'm sorry. Dr. Dingus is the next

5   speaker.   He is the Director of Virginia Tech

6   Transportation Institute.

7   Sorry, Tom.

8   DR. DINGUS: Thank you very much, and thank

9   you for inviting me here today.

10   I've titled my talk "Driver Distraction:

11   New Features, New Tasks, and New Risks," and that will

12   become apparent as to why that is in a few minutes.

13   Essentially what we are entering into with

14   the Information Age is a lot more information being

15   available in vehicles and a lot of desire to have those

16   features in vehicles, and what we have is the opportunity

17   to have a lot of convenience features, features that

18   could potentially improve productivity while we're

19   driving, and as commutes get longer and longer due to

20   traffic congestion, that's desirable.

21   We're also seeing a lot of technologies that

22   could potentially improve safety benefits, and that is

1 providing traffic, weather, obstacle information,

2 emergency communications, et cetera.

3 What we know about the safety benefits of

4 these devices is not much at this point. Now, that's not

5 to say that they're not substantial or they're not not

6 substantial. We just don't know much at this point.

7 But what we do know is that traffic weather

8 and obstacle information is probably beneficial, but we

9 can't tell how beneficial at this point due to lacking

10 data.

11 We do know to some extent that emergency

12 communications is valuable. That's 911 and 311, but that

13 doesn't preclude limiting the convenience features that

14 go along with these other features.

15 And we do know that there's a potential for

16 reduction in exposure. Navigation systems, for example,

17 can reduce travel time and the number of missed turns and

18 the amount of time that you're lost, and therefore,

19 you're on the road for less period of time and the

20 exposure would be reduced.

21 But we also know from previous kinds of

22 technologies that as the cost of availability and ease of

1   use of these products increases and they get wider market

2   penetration, that exposure may increase also.

3   And as you've heard from previous speakers,

4   basically what the literature tells us is that there is

5   strong evidence at this point that diverting visual

6   attention away from the roadway results in an increased

7   risk of crashes. There's also a growing body of evidence

8   that you get increased crash risk with cognitive demand

9   even from voice based systems.

10   But I want to emphasize as I show you some

11   of the data that I'm going to send you or that we show

12   you that we need more information about these systems.

13   We need more research and to really come to concrete

14   conclusions.

15   I'd like to provide for you a little

16   contrast historically about visual demand. This

17   represents a paper that was done by Helmut Zwalen in the

18   mid-1980s, and Helmut came up with this graph that showed

19   what was acceptable in terms of the average time you look

20   at a display and the number of glances.

21   And you can see you have an acceptable

22   region there that's, say, below 1.2 seconds per glance

1   and three glances, and you can see the gray and the

2   unacceptable regions there, two seconds and approximately

3   four glances.

4   This is one end of the continuum. This is

5   the most conservative estimate of what glance time should

6   be that I'm aware of. So this is one end of the

7   continuum.

8   I personally believe that you can go higher

9   in terms of number of glances in certain circumstances

10   and still be relatively safe, but as I said, this is one

11   end of the continuum.

12   And now I'd like you to keep that in mind as

13   I contrast some of what we're seeing in cars today. The

14   study I just showed you was based on very traditional

15   tasks. You look at a gauge or something in the dash or,

16   you know, at the absolute extreme you tune a radio, you

17   know, which was what was happening in the early 1980s in

18   a car.

19   Now what we're seeing is much different than

20   that traditional task, and some of these tasks, as you

21   heard from previous speakers require substantial visual

22   and higher order cognitive processing, and this can

1   interfere with driving and compromise safety.

2   To sort of characterize these new tasks, I

3   give for your consideration a simple block diagram where

4   in an old automotive task you had some kind of visual

5   demand from a gauge. That's the block on the far left

6   there. You had no cognitive processing or what we're

7   calling supplemental information processing to speak of,

8   and you made either no response or some kind of manual

9   response. You looked at your speedometer. If you were

10   going to fast, you lifted your foot off the accelerator,

11   for example.

12   New tasks, on the other hand, you could have

13   either visual or auditory input or the combination of the

14   two. You have pretty substantial cognitive processing in

15   some cases, and you can have both a manual demand and a

16   speech demand. So they've changed pretty substantially.

17   In a study we did, and this is a task that

18   we made up; this is not an existing system, but we did a

19   variety of tasks with different kinds of visual displays,

20   and this is an example of one that we considered to be

21   fairly complex, but not the most complex that we tested,

22   and it's fairly typical of the kind of things you'll see

1   on navigation displays in some cases today.

2   To illustrate the point of higher order

3   cognitive processing and the effects on driving, I'd like

4   you to consider two tasks. The first task is tell me

5   what roadway the Double Tree Hotel is on.

6   Okay. You've all pretty much done that. If

7   you did that in a car, it would take you a few seconds

8   and a couple of glances.

9   Now consider a hotel planning task where

10   this information is provided to you as it's ten o'clock

11   at night, and your task is to determine what hotel you

12   want to stay in, given this information. So you have

13   distance off the main roadway that you're traveling on,

14   in this case Interstate 17. You might have a preference

15   of a hotel type. You might have requirements as far as

16   a restaurant or a price. You're certainly interested in

17   whether or not there's a vacancy. That task takes

18   significantly more time, and that contains a lot of

19   supplemental information process.

20   To give you an idea of the difference, the

21   first task I gave you was a search task, and it's shown

22   on the far right of this diagram. The task that I gave

1   you second is a task that requires searching, planning,

2   and interpreting, which is somewhere in the middle of the

3   graph and there's a pretty substantial difference in

4   terms of this case the number of eye glances to a

5   display.

6   To give you an idea of some other pilot data

7   that we collected on eye glances, you can see, you know,

8   if you have a high density display, higher than the one

9   I showed you, you can get tasks that require glances over

10   20 seconds fairly commonly, up to 40 seconds, and you can

11   see the average total time to complete the task and keep

12   in mind this is relative to something like the 15 second

13   rule. There's some substantial task demands required by

14   some of these tasks.

15   We also looked at lane deviations or lane

16   busts, as Dr. Garrott pointed out in this study, and you

17   can see the difference between a conventional task on the

18   far right, a normal search task with a relatively complex

19   display, and some of the other tasks which require

20   planning and interpretation.

21   Now, it should be pointed out that these are

22   the same visual displays that are shown in every case,

1   with the exception of the far right graph, but the driver

2   is doing different asks with that information. So the

3   visual demand is not increasing, but what we're seeing is

4   drivers looking back to the task many times and taking a

5   long time to do it.

6   Now, I did a little modeling exercise to try

7   and give an illustration of how this might relate to

8   crashes. Now, the model I used was created by Walt

9   Wierwille and Louis Tijerina. Walt Wierwille works at

10   Virginia Tech, and he helped me do this little analysis.

11   But this is a very simple model and requires

12   a couple of caveats. Okay? It's based on crash data

13   from narrative crash databases from North Carolina and

14   existing in-vehicle data, and they created a simple

15   regression model. The data were limited and the models

16   very simple, but it illustrates a very important point.

17   The inputs to the model are three. The

18   average glance time to a display, the average number of

19   glances to the display during the task, and the estimated

20   frequency of use per week so that you can get an estimate

21   of exposure, and you can see the data there.

22   The data in the first three, checking the

1 fuel gauge, a complex radio task, and the navigation with

2 traffic info., those glance times and average number of

3 glances come from actual data, as do the estimated use

4 frequencies for checking the fuel gauge and the radio

5 tasks.

6   Beyond that, you see the new in-vehicle task

7 of low complexity, moderate, and high complexity, and

8 what I did there was I took data from a number of studies

9 that we've done over the years, and so those are kind of

10 an amalgam of typical tasks, typical range of tasks, and

11 you can see the average glance times there and the

12 average number of glances.

13   I estimated frequency of use as being twice

14 per commute for a normal work week, and so I just came up

15 with 20, and that's how I came up with that, but if you

16 feed those data into that simple regression model, you

17 get the following.

18   And what I've done here is I didn't predict

19 number of crashes, which as Dr. Garrott pointed out is

20 very difficult to do, but I normalized all of the data to

21 compare it to a fuel gauge which I set at one, and what

22 you see is as follows, and this is crash risk, relative

1 crash rate.

2   If the fuel gauge is set at one, the complex

3 radio task comes out at 6.3. The navigation device is

4 lower, primarily because the exposure or the number of

5 times that you use it per week is less, but you see the

6 low complexity, moderate complexity, and high complexity

7 amalgam of new types of tasks.

8   And there's a couple of points that are

9 important here. A complex radio task is done all the

10 time in vehicles. It's been done for the last 30, 35

11 years or so, and it requires your eyes off the road, more

12 than a fuel gauge which is a very simple display. So the

13 crash risk is going to increase to some extent.

14   But this is probably -- everybody, I think

15 would agree that this is relatively socially acceptable

16 because we weren't having this conversation 30 years ago,

17 and you can see the new task of low complexity is, you

18 know, for all practical purposes, given the accuracy of

19 the model, the same as the complex radio task.

20   On the other hand, if you have a new task,

21 new type of automotive task of moderate or high

22 complexity, the relative crash risk as predicted by the

1   simple model increases pretty substantially.

2   And you've also heard from other speakers

3   the difference between speech based and visual-manual.

4   For many years, many of us, me included, always assumed

5   that voice and auditory was substantially better and had

6   a really limited impact on driving performance. Part of

7   this is because it's very difficult to measure the impact

8   on the driving task of this kind of task.

9   But there are recent results. Some of them

10   are on the Web site that show the following: that there

11   is an increase in reaction time, a pretty substantial

12   increase in reaction time to an unexpected event, 30

13   percent.

14   There is decreased situation of awareness

15   tunnelling of attention. If you look at eye scanning

16   measures for when the driver is listening on a hands free

17   cell phone task or listening to a voice activated system,

18   they don't scan their mirrors at the same frequency that

19   they do when they're just driving, and they don't scan

20   the environment the same way that they do.

21   These tasks can increase task completion

22   time over visual-manual. Voice activated systems

1   sometimes require more time to input information, and

2   they can be pretty substantially long, longer than some

3   of the task times that you saw in some of the previous

4   slides.

5   And there's been some recent data that have

6   shown that if you had a signal response task, say, in a

7   driving simulator where the driver is driving along and

8   they're supposed to respond to a simulated brake light,

9   that they miss responses more frequently when they're

10   doing these types of tasks even though they're looking

11   right out the windshield, and these are important

12   findings.

13   So when we consider new tasks and we

14   consider what new tasks the driver should be doing in a

15   task, let me present the following for consideration. We

16   need to put tasks in a vehicle based on the necessity and

17   benefits to the driver. Now, without a direct safety

18   benefit, a more complex display is always going to be

19   less safe to some degree.

20   We need to consider safety impact in

21   general, and we need to consider complexity both in

22   visual terms, which we are doing better and better, and

1 cognitively, which we're beginning to understand more and

2 more, but we need more data in order to do that.

3 And we need to consider design, in

4 particular, to both minimize attention demand and to take

5 advantage of this technology to promote active safety

6 benefits that will reduce crashes potentially or reduce

7 the severity of crashes or the response time and

8 hopefully provide a safety benefit.

9 So in conclusion, I'd like to say that

10 increasing features in cars are probably feasible without

11 substantially increasing crash risk over types of tasks

12 that are currently done in cars, but we have to do that

13 very, very carefully. With very prudent allocation of

14 tasks, and what I mean by "allocation" is what can the

15 driver access while moving and what has to be accessed

16 while stationary, from the design of those things, the

17 amount of information that's transmitted, creating

18 designs that encourage drivers to chunk information, for

19 example, and to maximize safety benefits using new

20 technology.

21 But I must warn you that it's my opinion

22 that crashes will increase, and they will increase

1 significantly if improperly designed systems are deployed

2 in large numbers, and I'd like to point out that

3 additional simulator and on-road data are needed. You

4 always hear that the statement from researchers like

5 myself that we need more data, but we do need more data,

6 and we need to understand better how these systems are

7 going to impact the driving task and ultimately affect

8 crashes and safety both in terms of potential benefit and

9 potential risks.

10 Thank you very much.

11 (Applause.)

12 DR. KANIANTHRA: Jeff.

13 MR. PANIATI: Tom, to what extent is your

14 research considering the possibility that some in-vehicle

15 driver distractions, in fact, replacing other already

16 existing driver distraction, and I'm particularly

17 thinking of driver navigation where without a navigation

18 system a driver potentially could be looking at a map,

19 reading directions, scanning for a sign outside the

20 vehicle, all distracting from the driving task, which is

21 now being replaced by in-vehicle navigation which has its

22 own form of distraction.

1   DR. DINGUS: I'm a particular fan of in-

2   vehicle navigation systems under most circumstances. I'm

3   proud to have worked on the TravTek project, which you

4   heard from a previous speaker. As Dr. Garrott pointed

5   out, there was a net, although minor, but a net safety

6   benefit from using the TravTek system.

7   A key aspect that you have to understand

8   when you look at these systems, which is what you're

9   alluding to, is that you have to have an appropriate

10   baseline. Navigation in any form in a strange

11   environment is a very difficult task, and you've got to

12   do it somehow. You either have to try to memorize a list

13   of many terms, which most people don't or can't do, or

14   you have to look at a direction list that's turn by turn

15   with a map light on in a rental car. You have to look at

16   a paper map. You have to do something.

17   And I believe when you compare the

18   navigation tasks of in-vehicle devices to those baselines

19   of in-vehicle devices that are properly designed, you're

20   actually better in most circumstances.

21   But you have to contrast that with some of

22   the other things we're seeing like the auto PC or mobile

1 Internet functions. In those cases, there is no

2 baseline. You don't have to do that in a car to get from

3 Point A to Point B. So a logical baseline is normal

4 driving or, as I've done in the case of the fuel gauge,

5 comparing it to a simple visual display. So there is a

6 big difference, and I think you need to consider that.

7   MR. PANIATI: But I wonder whether that also

8 -- I agree with your thinking in navigation. I wonder if

9 this issue of sort of baseline driver distraction though

10 carries over into some of the other devices.

11   Think about your normal driving task and

12 often even on a cognitive standpoint you can't remember

13 driving from Point A to Point B because you were thinking

14 about other things, doing other things, and it seems to

15 me important to understand sort of how does the driver --

16 how is the driver distracted either cognitively or

17 visually today, and how are these devices either adding

18 to that work load or potentially replacing other

19 distractions that always existed, if you understand my

20 question?

21   DR. DINGUS: Yes.

22   MR. PANIATI: It seems like understanding

1   that baseline is critical to understanding the impact and

2   whether it's additional impact or not.

3   DR. DINGUS: I agree with that. I believe

4   it is additional impact, and I believe we're starting to

5   see data that show that, but you bring up a very

6   important point, and that is it's very hard in that

7   particular case to establish a baseline. You do

8   simulator studies and test track studies and even on-road

9   studies. You know, it's difficult, you know, to

10 characterize when the driver has had a bad day and

11 they're really thinking about something else that

12 happened at work that day, you know. And that doesn't

13 show up in the crash database.

14   It's a very difficult problem, but having

15 said that -- and I think we need better data certainly --

16 but having said that, I think all the evidence is

17 pointing toward the fact that there is a net increase.

18   MR. KRATZKE: Can I ask, Tom, are you

19 getting a lot of interest from suppliers and vehicle

20 manufacturers in understanding the work that you're doing

21 and that you've just presented here? I assume this has

22 been published, and it's something that people are

1   considering as they design.

2   Is that fair?

3   DR. DINGUS: Yes, I think that's fair. I

4   think at Virginia Tech, we have a variety of different

5   kinds of sponsors, both from the private and public

6   sector. There's a lot of interest in our research from

7   all different kinds of suppliers and OEMs, as well as,

8   you know, domestic and foreign, as well as government

9   officials.

10   And the community of researchers that do

11   this kind of work, you know, Ian and Riley and Louis, I'm

12   sure, have the same experience. There is great interest

13   in this topic, and I think the suppliers are getting as

14   much information as they can as they develop their design

15   decision.

16   MS. McMURRAY: Tom, you said that the new

17   task high complexity scenario is the riskiest scenario

18   that the driver faces. Have you found what is the most

19   likely safety consequence to undertaking that task? For

20   example, do you see more lane drift or run off the road

21   crashes, rear end collisions, running red lights? What

22   is the manifestation of that high engaging task on the

1   highway?

2   DR. DINGUS: Well, we collect a variety of

3   measures when we try to characterize distraction,

4   including all of the ones that you have stated, but the

5   kind of characteristics you see in that task,

6   particularly a visual task, is you'll see a number of

7   lane busts or lane deviations that average across

8   subjects close to an average of one per task, you know,

9   unplanned lane deviations in most cases.

10   You'll see speed deviations in excess of,

11   say, 15 or 20 miles an hour where somebody convening a

12   task who's traveling at the speed limit where it's 55 or

13   65 and at the end of the task typically going 35 or 40.

14   So they are clearly, at least in these

15   experimental circumstances, it's substantially impacting

16   the driving task.

17   DR. KANIANTHRA: Tom, I have a question from

18   the audience. Are young, inexperienced drivers more

19   affected by distraction than older drivers?

20   DR. DINGUS: That's a very interesting

21   question. The data are lacking, I think, to some extent

22   on very young drivers, very novice drivers, and driver

1   distraction as far as I'm aware, but I believe that the

2   trend is similar for newer tasks as it is in general, and

3   that is that younger drivers probably do show poorer

4   judgment for aspects like, you know, when to answer your

5   cell phone, when to look at a display in a high traffic

6   circumstance, whereas drivers with more experience

7   probably would be less inclined to do so.

8   Now, that's a little bit of a reach because

9   I don't have firm data right at my fingertips to back

10   that up. The older driver problem has been studied

11   fairly heavily. As drivers age, become mature beyond a

12   certain level, they tend to have more trouble with these

13   new kinds of tasks. The task times are typically longer.

14   In many cases, the driving performance is worse than with

15   younger drivers. They find it more difficult to do.

16   So I would characterize it as kind of a

17   bathtub kind of curve where the groups that will likely

18   have the most difficulty are the very young and the more

19   mature and probably see the least crashes, as is true

20   with most crash statistics, in kind of the middle age

21   range.

22   DR. KANIANTHRA: I have another question.

1   Every one of the speakers has said that we need more

2   data. What about the methodology to obtain this data?

3   Are there [agreements]* concerning the appropriate

4   methodology to obtain the data?

5   Do you have any thoughts on this?

6   DR. DINGUS: We need both. When it comes to

7   characterizing cognitive demand, it's very difficult to

8   do. As you saw from some of the previous speakers and

9   from my slides, it's easy to characterize a lane

10 deviation. It's relatively easier to measure somebody

11 when their eyes go to a display. It's much more

12 difficult to measure and characterize the amount of

13 cognitive demand they're experiencing at a given time.

14   There are some methods that are being tried

15 by the community at large that are showing some promise,

16 but we do need more work in that area.

17   DR. KANIANTHRA: If I may add to that

18 response, this public meeting is essentially to come up

19 with certain methodologies to acquire more data. So

20 we'll have a lot more to talk about it later on.

21   MR. HARTMAN: Tom, one last question. The

22 difference between older drivers and younger drivers, are

1   there different distractions? Are younger drivers more

2   inclined to use different types of devices than older

3   drivers?

4   And the reason why I bring this up this

5   morning on the way into work I listened to a news

6   segment, and they were talking about this young group of

7   teenagers. They were modifying their vehicles, and one

8   of the drivers was talking about having a Sony

9   Playstation put into his automobile, and I was thinking

10   that there may be a big difference in the types of

11   distractions the younger generation may have as opposed

12   to the older generation.

13   DR. DINGUS: I'm not a marketing expert, but

14   if you follow recent marketing trends, you would expect

15   older drivers, say, in luxury type of automobiles even if

16   the devices were available, they would probably use them

17   less frequently, but again, I'm not a marketing expert.

18   And then the type of task, I'm sure, vary by

19   different age segments. That's not really my area of

20   expertise.

21   DR. KANIANTHRA: Thank you, Tom.

22   (Applause.)

1   DR. KANIANTHRA: We will take a break

2   because we have a few chairs we want to move in. Fran,

3   so if you'll excuse, a ten-minute break. We'll gather

4   here by 10:50.

5   Thank you.

6   (Whereupon, the foregoing matter went off

7   the record at 10:43 a.m. and went back on

8   the record at 10:52 a.m.)

9   DR. KANIANTHRA: The next speaker is going

10   to be Frances Bents. She is the Vice President and

11   General Manager of Research, Science and Technology

12   Division of Dynamic Science.

13   Fran.

14   MS. BENTS: Thanks, Joe.

15   I didn't bring any slides today because I

16   didn't want any visual distractions making the audience

17   fell compelled to divide their attention from my message,

18   but I am grateful that Joe had a break just before I

19   spoke. So now you're all refreshed.

20   I've been involved with highway safety

21   research since 1975. I began my career with the National

22   Highway Traffic Safety Administration's Accident

1   Investigation Division, where I served for 11 years.

2   In 1986, I joined Dynamic Science, a

3   privately owned company that conducts highway safety

4   research for government and industry sponsors.

5   I'm here today because I am a co-author of

6   the DOT report with the long name and because of my

7   involvement in crash investigation research. I review

8   hundreds of crash investigation reports every year. I

9   have seen the faces of the dead. I know the stories of

10 the injured, and I believe that the use of cell phones by

11 drivers creates an unnecessary risk to the driving

12 public.

13   In gathering the information presented in

14 the federal report on in-vehicle use of electronic

15 devices by drivers, we focused on cell phones because

16 there were few other devices available at the time, mid-

17 1990s. In fact, the number of subscribers was 50 million

18 then as compared to the reported 95 million today.

19   The use of cell phones in cars was

20 relatively new, at least for non-business users, but was

21 growing rapidly. A Prevention magazine survey in 1995

22 reported that 85 percent of cell phone owners used their

1 phone while driving at least some of the time. If such

2 statistics hold true, there are now about 81 million

3 drivers talking on their phones while driving, and about

4 ten million of these use the phone during every trip.

5 NHTSA reports that they receive more

6 complaints and requests for information about cell phone

7 use than any other driving issue. Part of the reason is

8 surely because cell phone users are readily visible to

9 other drivers, at least when they're using them in the

10 hand held mode.

11 In fact, I would venture to say that

12 everyone in this room has either had a near crash

13 experience with a cell phone user or witnessed risky

14 behavior of some sort. The concerns about the safety of

15 such driving are growing, the frequent request for

16 information and guidance that form the impetus for the

17 1997 report continue. This conference reflects our

18 national concern.

19 Today not only is cell phone use by drivers

20 common, but industry plans to broadly expand the

21 availability of a multitude of in-vehicle communication

22 devices for E-mail, Internet access, electronic

1   navigation, and so forth are gaining momentum.

2   We know that as a society we can provide the

3   means to keep in touch with family and friends, conduct

4   business deals, entertain ourselves or order a carryout

5   dinner while driving our cars, but the important question

6   that has not been adequate addressed is should we.

7   The 1997 report talks about the challenges

8   of collecting data following a highway crash. As you've

9   seen this morning, there are no good statistics on the

10 number of deaths and injuries which can be attributed to

11 cell phone using drivers. There are a number of reasons

12 for this.

13 Most highway safety data is based at least

14 in part on police reports. When an officer responds to

15 a scene of the crash, he has three primary duties: to

16 tend to the injured, to restore the flow of traffic, and

17 to issue citations for violations of law.

18 It is not unlawful in any state to use the

19 cell phone while driving. Therefore, there is no

20 incentive for an officer to note cell phone use. In

21 Minnesota, Oklahoma and now in Pennsylvania and Michigan,

22 state officials are attempting to capture cell phone use

1 in their accident reports.

2 In examining the data, it is clear that they

3 have failed to do so. The data elements sometimes are

4 not well defined. As you saw this morning, in Oklahoma,

5 they do not make a distinction between cell phone use

6 prior to a crash and emergency notification calls.

7 The use of portable phones can be easily

8 concealed following a crash, and culpable drivers cannot

9 be expected to admit that their phone use was a

10 contributing factor.

11 While at the scene of a crash, it is

12 unreasonable to expect that a police officer will conduct

13 a thorough search of the vehicle and of the occupants to

14 determine whether a cell phone had been available or

15 used, given his other duties.

16 Even for professional crash investigators,

17 such as the ones who work for me, it is difficult to

18 detect phone use by drivers. Unless the driver admits to

19 such use, which does not happen frequently, a phone is

20 readily in view or a witness steps forward, there is no

21 way to establish such use in the absence of phone

22 records. Such record have not been made available to the

1 research community except for one small study in Canada.

2   In the DOT report, we also attempted to

3 examine broad based data files compiled by the federal

4 government. These include FARS and NASS, as you heard

5 this morning. For both of these data systems, all data

6 about cell phone use are derived from the narrative

7 portions of police accident reports. The inclusion of

8 such data is dependent upon the initiative shown by the

9 police officer who responded to the crash.

10   FARS included about 40 cell phone related

11 crashes for '94 and for '95. Half of these were reported

12 by Oklahoma, again, as you saw in the more recent data

13 today, but they could not be verified as previously

14 explained.

15   The few cases reported by the other states

16 were considered to be accurate, if under represented.

17 They contained some interesting similarities. The

18 citations issued to cell phone using drivers involved in

19 these fatal crashes were disproportionately high for

20 inattention when compared to all drivers included in

21 FARS.

22   In virtually all crashes the cell phone

1 using drivers were in the striking vehicle. When the

2 type of crash is examined, they fall into two categories,

3 drivers striking something in front of them or leaving

4 their lane of traffic. This pattern is repeated every

5 day on our highways.

6 The data contained in the 1995 NASS filed

7 followed a similar pattern. Five of the eight drivers

8 struck something stopped in front of them. Three other

9 drivers left their lane of travel and struck a vehicle or

10 object. In these eight crashes, six of the drivers were

11 engaged in conversation. One was dialing his phone. One

12 was hanging up.

13 Of the six engaged in conversation, two of

14 the drivers were using phones mounted in that hands free

15 mode.

16 What is common among all these crashes is

17 driver inattention. These drivers were not presented

18 with changing situations which required emergency

19 maneuvers. They simply failed to control their vehicles

20 during routine driving conditions.

21 DSI also attempted to prospectively collect

22 crash data in support of the federal report. We asked

1 several police departments in Maryland, D.C. and Northern

2 Virginia to notify us when a cell phone related crash was

3 identified.

4 Five such crashes were reported during a six

5 month period. In two of these cases, the drivers struck

6 a vehicle in front of them. In three other cases, the

7 drivers ran off the road. Two of these drivers were

8 startled when their phones rang and left their lanes as

9 a result. One mother killed her daughter when their

10 vehicle struck a tree as she reached for her phone.

11 What is striking about all of the recorded

12 cell phone related crashes is that they fall into those

13 two categories of striking something in front of them or

14 leaving their lane of traffic. They do not reflect the

15 full pattern of all crashes, which also include

16 intersection collisions, rear ends, roll-overs.

17 Something is different about cell phone crashes, and I

18 suggest to you that it is driver inattention.

19 A lack of statistical data about a problem

20 is not the same thing as a lack of evidence. We have all

21 seen letters to the editor, items in newspaper columns,

22 editorials, and even advertisements such as this one in

1 a Sunday paper which states, and I quote, "Chances are

2 you've seen people driving down the road cradling a cell

3 phone on their shoulder as they try to carry on a

4 conversation while navigating traffic. You've seen them

5 drifting across the center line while they're talking on

6 the phone."

7 As a society we recognize this issue as a

8 safety problem, and we are concerned. When something is

9 dangerous, we expect laws to be passed for our

10 protection. In more than half our states this year,

11 legislators have introduced bills to limit cell phone use

12 by drivers. These legislators are responding to

13 constituent demands for protective laws, but no bills

14 have passed. We have to ask why.

15 Industry lobbyists argue that specific cell

16 phone laws are not needed because every state has

17 careless or inattentive driving laws already on the

18 books. When I was a federal employee, I heard the same

19 arguments presented by the liquor industry. There are

20 enough laws. A drunk driving law would be unenforceable.

21 Reasonable people don't drink and drive.

22 In fact, when tougher laws, such as lowering

1 legal limits for blood alcohol content, raising the

2 drinking age back up to 21, and authorizing

3 administrative license revocations were passed, the

4 number of motor vehicle occupant death and injuries

5 caused by drunk drivers was dramatically reduced.

6 I suggest that there are behaviors such as

7 drinking or phoning while driving that are so commonplace

8 and yet so potentially dangerous that they require

9 special laws.

10 Laws are effective in two ways. They

11 establish appropriate punishment for wilful behavior, and

12 they create guidelines for law abiding citizens. Under

13 current careless driving laws, a cell phone using driver

14 who kills someone in a crash will receive a $50 fine in

15 most states. Is this appropriate?

16 After drunk driving laws were passed, the

17 public learned that drinking more than one alcohol

18 beverage influenced their ability to drive. Many law

19 abiding people modified their drinking habits as a

20 result.

21 The public also needs to learn that talking

22 on the phone while operating their vehicles impedes their

1 performance. I know that they will respond by making

2 necessary calls while their vehicles are stopped in safe

3 locations. Without this law, this message will never be

4 delivered appropriately.

5   Should drivers keep both hands on the wheel?

6 Any reasonable person would say, "Of course." The more

7 challenging issue is whether a driver should devote his

8 full and uninterrupted attention to driving. This leads

9 us to the question of what constitutes inattention and

10 how much is too much.

11   As you've heard this morning, human factors

12 experts tell us that there are basically four kinds of

13 driving distractions. The first is visual. Looking away

14 from the roadway would be an example of this.

15   The second is biomechanical. This would

16 include manipulating a control, such as dialing a phone

17 or adjusting a radio, and can often be associated with a

18 visual distraction.

19   The third is auditory, such as being

20 startled by a ringing phone.

21   And the fourth, the big one, is cognitive.

22   Let me give you an example. As we heard

1   from one of our panel members this morning, we have all

2   had the experience of traveling from Point A to Point B

3   and then realizing that we're not sure how we got there

4   or what happened in between.

5   Being lost in thought or being in focused

6   conversation with someone causes us to withdraw from

7   situational awareness.

8   Research is beginning to obtain evidence

9   that's shifting from hand held to hands free phone use

10   while driving does not result in eliminating all cell

11   phone distractions. It addresses the visual and

12   mechanical distractions, but does not address auditory

13   and cognitive issues.

14   This raises the question: how is conversing

15   on a phone different than talking with a passenger in a

16   vehicle? There are two important differences.

17   The first is that a passenger in a vehicle

18   is aware of the driving situation and can even serve as

19   an additional lookout for hazards. If there is a needed

20   pause in conversation, the reasons are evident.

21   The second is that the phone use seems to

22   carry a certain obligation of immediacy. When the phone

1 rings we feel compelled to answer it whether it is

2 convenient, safe, or appropriate to do so. We become

3 focused on the phone call and lose the situational

4 awareness so necessary for safe driving.

5   As we saw in the earlier examples of

6 crashes, drivers then proceed to leave their lanes of

7 travel or strike objects in front of them including

8 trains and buses. I've seen it.

9   I have been asked whether drivers might be

10 able to improve their driving performance while using the

11 phone if they have additional practice. My response is

12 this.

13   By the time people become licensed drivers,

14 they have had at least ten years of experience talking on

15 a telephone. If someone attempts to get our attention

16 while we're on the phone, we generally respond in one of

17 two ways. We either kind of wave them off, "I'll be with

18 you in a minute," or we interrupt our call to attend to

19 the new demand.

20   If we are talking on a cell phone, the

21 activity that we are waving off is control of the

22 automobile. Practice doesn't seem to make a difference

1   when it comes to the attention demands of phone use.

2   The Cellular Telecommunications Industry

3   Association told us in 1995 that an average cell phone

4   call lasted 2.15 minutes. With a reduction in phone

5   rates, perhaps calls are even longer today.

6   At average highway speeds, a vehicle will

7   travel nearly three miles during a two and a half minute

8   span. Data shows that traffic speeds are at an all time

9   high. The number of vehicles sold in recent years has

10   reached new records. The increase in traffic congestion

11   is spawning new problems commonly referred to as road

12   rage.

13   Should we allow nonessential communications

14   and entertainment devices that produce cognitive demands

15   to be used by drivers under these conditions?

16   Industry argues that cellular telephones are

17   important devices for reporting emergencies. This is

18   absolutely true, and the law enforcement community

19   supports such use, but emergency calls can and should be

20   made from stopped vehicles. Indeed, most calls relate to

21   witnessing a crash. Under such circumstances, traffic is

22   often stopped and witnesses attempt to render aid.

1   The cellular telephone industry often

2   demonstrates their commitment to promoting safety for

3   their customers through the use of information packets

4   included with product purchases or customer billing and

5   through the occasional television ad. All industries

6   include caveats for product use in the literature that

7   accompanies products. Most of us don't read any of it

8   because we know it is provided primarily to protect

9   companies during litigation.

10   I challenge cellular phone service providers

11   to do more. I suggest that they not only participate,

12   but sponsor field research in which the police reports of

13   motor vehicle crashes are matched to phone use records

14   for all individuals in a broad geographic area.

15   The use of cell phones to report emergencies

16   could be highlighted since such emergency response calls

17   are made to established numbers. Such an epidemiologic

18   study would provide all of us with the information that

19   we lack on the frequency with which cell phone use is

20   related to motor vehicle crashes and to emergency

21   response.

22   This proposed study should be conducted, of

1   course, by a neutral third party and would only establish

2   a correlation of cell phone use in crashes, not

3   causation.

4   It would also move the discussion forward

5   from anecdotal information presented by victims who have

6   suffered losses and beyond industry claims that a problem

7   does not exist.

8   The January-February issue of <u>Public Safety</u>

9   published by the National Safety Council includes an

10   article entitled "Employees Behind the Wheel." While it

11   does not include information about cell phone use, it

12   does make two important points.

13   The first is that a study conducted by the

14   Network of Employers for Traffic Safety found that 40

15   percent of the 70,000 workers in two companies had missed

16   time at work during the previous year due to a crash.

17   This is a statistic to which business owners will

18   respond. Highway safety is costing them money.

19   The second point is that employee sponsored

20   safe driving programs make good sense, but according to

21   a quote from Susan Herbal from NETS, if they are not

22   required to do it by law, they don't. Cell phone

1 industry representatives argue that education is needed

2 to insure the safe use of cell phones while driving.

3 Let's look at some of the slogans offered by industry.

4   Use your cell phones safely while you drive.

5 Safety is your most important call.

6   So we hear positive messages here? Have we

7 ever heard industry say, "Hang up and river"? Are these

8 types of slogans likely to really educate the public

9 about the dangers of cognitive distraction?

10   The logic then follows that if using a cell

11 phone while driving were dangerous, we would have laws

12 telling us not to do so. Many European nations,

13 Australia, Japan and others, have passed and do enforce

14 such laws. These nations did not wait until they had

15 amassed statistics or injured victims before they took

16 action. They recognized that a problem exists, and they

17 passed laws to protect their citizens. I urge our states

18 to do the same.

19   Thank you.

20   (Applause.)

21   DR. KANIANTHRA: Thank you, Fran.

22   MR. PEREL: Based on your work in the

1   traffic records area, would your conclusion be that

2   further attempts to improve traditional means of traffic

3   data collection, police report forms, those kinds of

4   things and that kind of investigation is not likely to

5   result in very much more information on this issue?

6   I mean, is that a direction we should

7   continue to pursue or should we focus more on the human

8   factor side?

9   MS. BENTS: I think you will get your most

10   satisfying results from the human factors side. As I

11   discussed, it's very, very difficult to detect cell phone

12   use if you respond to the crash after the event and if

13   you have no reason to do a thorough inspection of the

14   vehicle and of the occupants and ask those pointed

15   questions. Were you using the phone?

16   I think the best way to get at cell phone

17   use is as I said. Match the crash date with industry

18   records or the event data recorder, if there's some way

19   to have a vehicle interlock. I think that's an excellent

20   suggestion.

21   DR. KANIANTHRA: Fran, are you aware of any

22   jurisdiction reporting or assembling the near misses?

1 Because that gives you an indication of what is the

2 magnitude of the problem. Are you aware of any?

3   MS. BENTS: I'm not aware of any. When we

4 were compiling the information in the DOT report, we did

5 put out very informal surveys, questions on the Internet.

6 We posted notices in the local newspapers and so forth,

7 asking people to report on those kinds of experiences.

8   It, of course, is anecdotal, but you can

9 talk to almost anyone and they've had a near miss

10 experience today.

11   DR. KANIANTHRA: We have this Internet

12 forum, which we think that it's an opportunity for the

13 public [to]* bring that information to us because that

14 could be useful.

15   MS. BENTS: Yes.

16   DR. KANIANTHRA: Thank you.

17   MS. McMURRAY: Fran, I'm sorry. I have a

18 question.

19   One of the recommendations you made was that

20 perhaps cell phone users should be expected to pull over

21 and make that call safely, and one of the areas that

22 we're very concerned about are car drivers taking that

1 literally and pulling over on the side of shoulders of

2 interstates and other places where there are high

3 hazards.

4 The other question I have or the other thing

5 I'd like for you to comment on is a potential

6 complication in matching the crash time with the time the

7 person was on the cell phone is being able to fix without

8 any controversy that the cell phone was the contributing

9 cause of the crash because there may have been something

10 else going on at the same time that the cell phone

11 conversation was happening.

12 Perhaps the person was retrieving a dropped

13 CD or eating something.

14 MS. BENTS: Right.

15 MS. McMURRAY: Can you --

16 MS. BENTS: Comment about that? Certainly.

17 In the first instance with regard to pulling over, I

18 agree with you. I do not recommend that people pull over

19 to the side of the road. That creates other potential

20 hazards.

21 However, I do support the notion of building

22 additional rest stops, and I think perhaps the trucking

1   industry would join me in that. Hours of service and

2   driver fatigue is a major issue, and I was just at a

3   meeting last week in Denver with trucking

4   representatives, and they wholeheartedly support, they

5   desperately need more rest stops.

6   So perhaps that is something that can

7   benefit the driving public in many ways.

8   With regard to matching up the police

9   reports with cell phone records, as I said, it will only

10   establish a correlation, not causation. That will

11   require additional research, and you'll actually have to

12   establish kind of a band, perhaps a 15 minute window

13   because it's difficult to establish the precise time of

14   a crash, of course, so but only further the research to

15   give us a better feel for how frequently crashes and cell

16   phone use happen to occur at the same time.

17   DR. KANIANTHRA: Thank you.

18   (Applause.)

19   DR. KANIANTHRA: A couple of housekeeping

20   items. We will take up questions, time permitting,

21   towards the end. So the audience, please forward any

22   questions you may have. We haven't answered all the ones

1 we got so far.

2   Ms. Millman's speech is available outside on

3 that table. There are some copies there, and we will

4 also post it on our Internet forum? No, NHTSA Web site.

5 Okay.

6   The next speaker is Sean Maher, American

7 Motorcyclist Association.

8   MR. MAHER: Good morning. My name is Sean

9 Maher. I'm with the American Motor Cyclist Association.

10   I'd like to thank NHTSA and the panel for

11 the opportunity to speak today.

12   Here we go. "Honestly, Office. I didn't

13 see the motorcyclist." Watch for motorcycles. Share the

14 road. Look twice, save a life.

15   These are all slogans or phrases that have

16 been incorporated in the motorcycle safety messages over

17 the years, the point being to tell motorists to pay

18 attention to the task of driving and the traffic around

19 them, particularly motorcycles.

20   I'm here today on behalf of the American

21 Motorcyclist Association's 266,000 members, as well as

22 the millions of others who ride motorcycles, to direct

1   this message to the telematics industry, academia,

2   government, and others involved in the research,

3   development, and deployment of in-vehicle technologies:

4   watch for motorcycles.

5   Until two years ago, motorcycle crashes and

6   fatalities had dropped steadily for a decade. Over that

7   decade crashes and fatalities were cut in more than half.

8   However, 1998 saw an eight percent increase

9   in fatalities, while preliminary figures for 1999

10 indicate an 11 percent increase in motorcycle fatalities.

11   While no research has been conducted to

12 determine the cause or causes of this upswing, it is an

13 historical certainty that driver distraction plays a

14 significant role in motorcycle crashes and fatalities.

15 In 1998, nearly 1,200, or over half of all motorcycle

16 fatalities, occurred in the multi-vehicle crashes. The

17 left-hand turn in front of an approaching motorcycle

18 scenario was most predominant, accounting for 36 percent

19 of these fatalities.

20   In addition, the multi-vehicle/motorcycle

21 crash fatalities. Research has indicated that at least

22 a third of single vehicle motorcycle crash fatalities can

1 be attributed to other vehicles. Whether you call it a

2 near miss, a near hit, a near collision, or phantom

3 vehicle, the bottom line is that a vehicle encroaches on

4 the motorcycle causing the motorcycle operator to crash.

5   Just two weeks ago an associate editor with

6 Motorcyclist magazine lost his life in just such a

7 scenario. The following is an excerpt from the Ashville

8 Citizens Times.

9   "As a highly experienced rider and

10 motorcycle enthusiast, Greg McQuayde (phonetic) raced his

11 Sazuki SB-650 at the Willow Springs International Raceway

12 in Mohavi Desert, Town of Rosemond, California, north of

13 his home Town of Hollywood. It was ironic then that the

14 30 year old member of the Willow Springs Motorcycle Club

15 and associate editor of Motorcyclist magazine would die

16 during a routine cruise on Interstate 40 Friday evening

17 while in town for the Honda Hoot. According to the

18 Highway Patrol, McQuayde laid his motorcycle down in the

19 road to avoid being struck by a box-type truck that

20 unexpectedly cut into his lane. When he did, he lost his

21 grip on the bike and slammed into the guard rail, dying

22 almost instantly. Two nurses witnessed the accident and

1 stopped, but were unable to get a pulse.

2 "Troopers and sergeants were making a

3 concerted effort to no avail to find the red cabbed truck

4 with the white box. They checked at least eight trucks

5 matching the description, but with nothing else to go on

6 were unsuccessful.

7 "There were four witnesses to the accident.

8 Although the truck apparently never made contact with the

9 rider, no one got a license plate number of the eastbound

10 truck."

11 I wonder why the driver of the red truck

12 with the white box didn't see Greg. I suspect he was

13 distracted. It might have been a cell phone or a

14 navigation system, or perhaps it was something more

15 common like a newspaper perched in the driver's lap

16 similar to the one I saw Monday in the lap of the driver

17 of the green Ford Windstar who was three-fourths in my

18 lane before realizing me and my motorcycle were there.

19 I'll add that I ride a bright red

20 motorcycle. I wear a bright red jacket, and I keep my

21 brights or high beams on during the day.

22 Whatever the source, when distracted drivers

1 and vulnerable road users, such as motorcyclists, meet,

2 the results are often great. We believe that it is,

3 therefore, critical that the deployment of in-vehicle

4 technologies be approached with caution and that the

5 needs that impact all road users, to include

6 motorcyclists, bicyclists, and pedestrians, be considered

7 thoroughly.

8 Included in the Transportation Equity Act

9 for the 21st Century was a revision to the goals

10 statement of the intelligent transportation system. This

11 section was revised to provide that the needs of all road

12 users, specifically mentioning motorcycles, were to be

13 considered in the research and development of ITS

14 systems, of which in-vehicle technologies are a part.

15 However, from all appearances, motorcycles

16 continue to be widely overlooked by both government and

17 industry. As an example, I reviewed all of the technical

18 papers on the Internet forum on driver distraction, to

19 include NHTSA's paper "Driver Distraction Research Past,

20 Present and Future," and failed to find one occurrence of

21 the word "motorcycle" or "motorcycles."

22 As a regular and increasing part of the

1   traffic mix, it is imperative that research and

2   development of in-vehicle technologies consider motor

3   cycles to insure that deployment does not compromise

4   motorcycle safety.

5   To that end, the following are a few

6   recommendations. The AMA recommends that the deployment

7   of in-vehicle technologies be accompanied by strong

8   public information and education campaigns supported by

9   both the government and industry. Campaigns similar to

10   the cellular industry's urging motorists to stop to make

11   calls are a step in the right direction.

12   The integration of safety messages on

13   navigation system visual displays and speech systems

14   should be explored. These messages could be variable,

15   addressing many of the safety concerns associated with

16   distracted drivers, to include those of motor cyclists.

17   In addition, in-vehicle technologies

18   designed to compensate for driver distraction, such as

19   automated collision warning systems or lane keep systems,

20   should be thoroughly tested to insure that they are

21   capable of detecting and responding to motorcycles and

22   other vulnerable road users.

1   NHTSA's current and future in-vehicle

2   technology research should consider all road users, to

3   include motorcycles. For example, the national advanced

4   driving simulator project should include motorcycles

5   among simulated traffic so the driver reactions to

6   motorcycles may be measured.

7   Driver distraction has always been a serious

8   issue for the motorcycling community. Irresponsible

9   motorist use of cellular phones, the increased presence

10   of navigation systems, and forthcoming integration of

11   Internet and E-mail access in automobiles, combined with

12   the increasing number of motorcyclists and motorists on

13   the road are intuitively a recipe for increased driver

14   distraction and disaster.

15   The AMA urges the cautious, responsible

16   integration of these in-vehicle technologies, with

17   particular emphasis on minimizing driver distraction.

18   That concludes my remarks. I'll take a

19   crack at answering any of your questions.

20   (Applause.)

21   DR. KANIANTHRA: Are you aware of any

22   devices which motorcyclists use which could be the cause

1   of distraction?

2   MR. MAHER: Am I aware of any the devices

3   that motorcyclists use that could be causes of

4   distraction?

5   DR. KANIANTHRA: Yes.

6   MR. MAHER: There's a portion of the

7   motorcycling community that does use navigation systems,

8   but I am not aware of how much that contributes to

9   distraction. I don't think it's ever been studied.

10   DR. KANIANTHRA: Thank you.

11   MR. MAHER: Thank you.

12   DR. KANIANTHRA: The next speaker is Ms.

13   Joyce White. She is a private citizen from Florida.

14   MS. WHITE: Good morning. I'm honored to be

15   here.

16   I wanted to talk to you today about this

17   whole subject. I'm a registered nurse by profession, but

18   my most important role, the one that I hold dear to my

19   heart, is that of a wife and a mother.

20   I don't pretend to be an expert in

21   telematics development, cognitive load, and research

22   modalities. I came to Washington today as a concerned

1 citizen to share my views on driver distraction and

2 telematics in hopes that you will walk away with a deeper

3 understanding of the problem and what you can do to help.

4 I have a personal interest in this issue

5 because almost three years ago my 21 year old daughter,

6 Angela, along with one of her friends was killed in a

7 crash in which the driver of the other vehicle was using

8 a cell phone. This driver was unaware that she was

9 speeding and did not see the car that my daughter was a

10 passenger in prepare to make a turn. Classic examples of

11 driver distraction.

12 It was a clear night with little traffic on

13 the road, no alcohol involved, and everyone was wearing

14 their seatbelts, but on that night two young lives were

15 unnecessarily lost.

16 Friends and family have felt the pain of

17 their loss every day since. Could something have been

18 done to prevent it?

19 Clearly, the present data collection system

20 doesn't reflect trends and the association of telematic

21 device use in automobile crashes and fatalities. Only

22 two states, and maybe Michigan now hopefully, have

1 changed their crash reports to include a place for police

2 officers to check whether a phone was in use at the time

3 of the crash or traffic infraction.

4 Being a nurse, I don't think it would be a

5 problem at all for an officer to directly ask that

6 question in every single accident. We as nurses do that

7 with our assessment process all the time.

8 Couldn't a national policy be made to insist

9 that all states document telematics use, including the

10 type of the device used? Although this information may

11 not be entirely reliable and accurate, it could provide

12 a pool of subjects from which qualitative research could

13 be done and polls could be taken.

14 In addition, everyday drivers would be more

15 aware of the potential for this information to be

16 monitored and, thus, perhaps be more selective in their

17 decisions to use these devices while driving.

18 Incidents of use could dramatically drop

19 while the research continues, with the probability that

20 lives will be saved.

21 Please consider mandating that this

22 information be accumulated, please.

1   There are questions in the driver

2   distraction research regarding the level of experience

3   that the driver has in using telematics while driving.

4   A group of experienced subjects, police officers who have

5   advanced driver training coupled with routine multi-

6   tasking requirements, such as responding to radio

7   dispatch transmissions, making reports on computers, and

8   in some localities managing GPS systems while they're

9   driving, could be compared with novice drivers whose

10   expertise in managing telematic devices is limited.

11   Visual, mechanical, auditory and cognitive

12   distraction could be measured in all groups. The

13   research results could help the public in assessing their

14   own abilities to drive safely while using these in-

15   vehicle technologies.

16   Concerning safety, a big word for me, it is

17   of utmost importance that more public education be done

18   in the area of driver distraction. At the very least the

19   NHTSA can continue to post the historically important and

20   current research papers on their Web site for the public

21   to access and the make informed decisions about using

22   telematic devices while driving.

1   Access to the research is profoundly what

2   made me take the position that I do.

3   Efforts such as those by the National

4   Wireless Safe Talk Center and the Network for Employers

5   of Traffic Safety can be publicized and have funds

6   appropriated for them perhaps legally. I agree that

7   private corporations can insist that their employees take

8   -- especially with NETS.

9   Medical professionals, teachers, and law

10 enforcement agencies, too, are in idea positions to teach

11 the risk factors associated with driver distraction and

12 measures to implement safety.

13   Successful strategies that MADD has used to

14 get their message across can be replicated, measuring

15 results in frequent evaluations.

16   Each subset of the population, teenagers who

17 are trading in their beepers for cell phones, adults, the

18 elderly, business professionals, and an often overlooked

19 group, even children should be targeted. At this point

20 education must be emphasized as much as research and data

21 collection, if not more, in terms of dollars spent.

22   As you can tell, I am presently not an

1 advocate of legally banning telematic device use -- I

2 almost couldn't get that out -- though I do not use them

3 when I driver and further will not speak to anyone on the

4 phone if I am aware that they are using a telematic

5 device.

6 Bills that grow government and evoke further

7 intrusion into people's lives are unnecessary. Safety

8 legislation is needed when we as consumers aren't being

9 responsible in complying with known risks associated with

10 certain behaviors, such as our laws regarding seatbelts

11 and motorcycle helmet use.

12 Let's educate the public so that they can

13 assume responsibility for the choices they make. The act

14 of driving itself is multi-tasked. When telematics are

15 added to this task, driver distraction will occur.

16 My daughter's death demonstrates how lethal

17 telematics and driving can be. Surely it won't take a

18 huge lawsuit against a manufacturer, insurance company,

19 or business whose employees routinely use telematics

20 before we take action. I, for one, don't want any other

21 mother or sister or friend to go through what I have.

22 As a nurse I am passionate about saving

1 lives. While experts in the field, such as yourselves,

2 go about your daily tasks of formulating research

3 questions, collecting data, and statistical analysis, I

4 want you to remember the faces of two young girls who

5 died too soon. What will you do to prevent further

6 tragedies?

7 I have handouts in the hall to recap.

8 Mandate that every state collect telematic use on crash

9 reports. Continue research posting results on the

10 Internet. Target all age groups with public education on

11 risk factors and safety measures while research

12 continues. Consider legislation to restrict telematic

13 use while driving if it proves necessary, and assume as

14 it does.

15 And lastly, never forget that there's a

16 face, a lost love, associated with every fatality.

17 Thank you.

18 DR. KANIANTHRA: Thank you.

19 (Applause.)

20 DR. KANIANTHRA: The next speaker is going

21 to be Vann Wilber. He is the Director of Vehicle Safety

22 and Harmonization of the Alliance of Automobile

1 Manufacturers.

2 MR. WILBER: Thank you, Joe, for your

3 introduction, and on behalf of the Alliance of Automobile

4 Manufacturers and its 13 members, the BMW Group, Daimler-

5 Chrysler, Fiat, Ford Motor Company, General Motors,

6 Isuzu, Mazda, Mitsubishi, Nissan, Porche, Toyota, Volvo

7 and Volkswagen, I am pleased to be here today and take

8 part in what should now be the launch of the very

9 important public debate on driver distraction and

10 telematics.

11 Safety in our vehicles and on our highways

12 are everybody's business, and with more and more time now

13 being spent in the vehicle environment commuting to work,

14 to leisure, to home, to office, there's also a demand for

15 an extension of this space to become much more

16 personalized, to make it more productive, to utilize it

17 to a greater advantage as we are all under the pressure

18 of time compression in today's society.

19 Motorists are traveling 500 million miles a

20 week in their vehicles. That's an awful lot of time. So

21 it's important that vehicle manufacturers make sure that

22 this is a safe time for their vehicle occupants.

1   In addition, consumers are demanding more

2   in-vehicle information, communications systems and other

3   devices that will make the time they spend in their

4   vehicle more productive for themselves and more enjoyable

5   to them.

6   Coupled with this is clearly the issue that

7   we talked about here today, the distraction that such

8   communications systems present and offer to the whole

9   arena of vehicle safety.

10   Telematics and the use of electronics and

11   communications technologies to provide information and

12   guidance to vehicle operators and other vehicle occupants

13   can offer significant benefits not only in time

14   efficient, but also in personal safety and security

15   through the ability to quickly be able to communicate if

16   the need arises for either medical help, a crash scene,

17   for assistance in getting out of a dangerous arena that

18   they may have found themselves in for locating stolen

19   vehicles, for providing real time navigation, traffic

20   advisories, et cetera.

21   All of these are potential or real positive

22   benefits towards in-vehicle telematics. The challenge

1   today is to provide to the maximum extent possible those

2   benefits while minimizing the risks, the down side, the

3   negative, and that is the safety consequences of

4   distraction.

5   Certainly driver distraction is not new. It

6   has probably been around as long as the first vehicles

7   were on the road together. The Indiana study mentioned

8   earlier showed mechanical faults being a very low

9   percentage of the accidents that occur.

10   One could argue then if it isn't a

11   mechanical fault, there had to be a driver fault attached

12   to it and driver distraction probably played some role to

13   it.

14   Responding to the changes in the external

15   driving environment is very much the primary

16   responsibility of the vehicle operator, but that

17   oftentimes is a shared responsibility. Conversations

18   with other passengers, thinking about work or leisure,

19   thinking about home and family, dealing with small

20   children, eating your McDonald's or whatever, as well as

21   telematics.

22   So what we need to do as you've heard

1   earlier is to really understand. Are telematics purely

2   an additive type of distraction or are they, in fact,

3   replacing a current distraction, such as the example of

4   reading a road map versus a navigational system. Which

5   one is the more appropriate activity for the driving

6   environment?

7   We believe that vehicle should be designed

8   to minimize the potential for driver distraction while

9   allowing appropriate information to be provided to

10   drivers to assist them in their desires for information

11   and safety.

12   So the goal is to allow customers safe

13   communications by designing systems that limit the time

14   of unnecessary or excessive attention demands on a driver

15   while he or she is driving. At their discretion today

16   both drivers and passengers have a variety of hand held,

17   essentially nonautomotive devices in their vehicles, and

18   herein is part of the problem.

19   If you take a look at a cell phone, it has

20   nothing to do with the driving environment. It wasn't

21   designed to be used in a passenger car. It wasn't

22   designed by motor vehicle experts. They are mobile

1   systems that were used for a totally different purpose

2   being introduced into the driving environment.

3   The operator interface on these devices are

4   not designed, therefore, for use while driving. In

5   addition, it does not comprehend that drivers must

6   perform several functions all at the same time while

7   using multiple unintegrated devices. By that I mean that

8   the system of a hand held phone or other navigation

9   system that was an add-on to the vehicle is not

10   integrated into the total vehicle package and, therefore,

11   comprehending the total vehicle environment and the

12   operator load that that represents.

13   Integrating such systems should allow motor

14   vehicle manufacturers to design them better to minimize

15   the amount of time drivers are distracted from the

16   roadway either through visual or cognitive demands. It

17   would also allow, for example, the automatic deactivation

18   of these devices when they were not in use or in any need

19   of having it in an active form.

20   Current vehicle telematic systems have been

21   designed primarily to an internal set of requirements by

22   each of our individual member companies which are based

1   upon a set of fundamentally common sense principles to

2   guide how information delivery systems in the motor

3   vehicle should be designed.

4   Typically, those are minimizing the amount

5   of time drivers take their eyes off the road or a hand

6   off the wheel, making particularly demanding tasks

7   unavailable while the vehicle is in motion, and limiting

8   the number of interfaces that can be accessed

9   simultaneously.

10   These are some of the ideas that

11   manufacturers internally put forth. For example, current

12   systems on motor vehicles sometimes use a series of

13   buttons to activate a particular event. Those are now

14   being viewed to be replaced by the voice activation

15   systems that are currently becoming more reliable and

16   repeatable.

17   Another example of a current integrated

18   phone system is one that automatically mutes the radio

19   so that you don't have conflicting inputs from the audio

20   point of view during the vehicle operation process. So

21   this eliminates the need for the driver to either

22   physically change or mute the radio settings, and it also

1 eliminates the distraction that that radio may provide

2 while your attention may be more in tune to the

3 conversation of the phone.

4 Vehicle manufacturers have used such

5 internal guidelines over the years to continuously

6 improve the operating environment within the motor

7 vehicle, and it may be worthwhile to examine these

8 internal guidelines that are proprietary to each

9 individual manufacturer to see if we couldn't bring them

10 together, look at the best practice on a broader industry

11 guideline package.

12 For example, how to design and locate

13 information and communication systems so that they are

14 truly compatible with the driving task. How do you

15 present information so to minimize distraction and

16 information overload? How many messages how often, how

17 complex?

18 How to assure that no part of the system

19 interferes with the driver's necessary field of view or

20 obstructs the vehicle controls and displays that are

21 essential for the safe operation of the car.

22 And how do you present information that is

1 relevant and useful while minimally diverting from the

2 primary task of driving the vehicle? Should it be audio?

3 Should it be visual? Should it be both? Is this the

4 case of a picture is worth 1,000 words or maybe not?

5 I would suggest the development of such

6 types of industry based guidelines would be an extremely

7 useful exercise, but I also say that it is also equally

8 important to remember the responsibilities noted earlier

9 that the primary safety function of the vehicle rests

10 with the driver of that vehicle, and the importance of

11 this responsibility cannot be overlooked or minimized.

12 Designing future vehicles that address

13 safety needs while implementing technologies that

14 customers desire will require further understanding of

15 the human-machine interface, and again, earlier today

16 we've heard about some of the research initiatives

17 currently underway and needing further study.

18 First, as noted above, in the near term, I

19 think development of industry design guidelines that

20 incorporate best practice of the most current information

21 regarding human-machine interface should be developed.

22 Second, and starting now with the launch of

1   this meeting today, conduct the additional research

2   necessary to better understand the safety implications

3   that future telematics and features may, in fact -- what

4   kind of challenges those may, in fact, bring forth and

5   enable the development of more comprehensive requirements

6   for these future telematic features.

7   Third, and again, in the near term,

8   investigate ways to enhance the public awareness of the

9   need to correctly operate telematic systems and encourage

10   the safe driving behaviors.

11   So to develop industry guidelines for

12   telematic systems, I think we should combine our internal

13   industry members' efforts with those of the external

14   community, both in the public and private sector and

15   academia, along with the government's most recent driver

16   distraction information presented today, and go about a

17   process of proposing telematic design guidelines to

18   assure that the best requirements are put in place in the

19   shortest possible time.

20   I believe this can be done in a voluntary

21   fashion similar possibly to the recently completed side

22   air bag out of position testing requirements that

1 interested parties got together outside of the regulatory

2 arena to try to come up with a voluntary set of

3 guidelines to achieve the desired result of minimizing

4 the safety risk of telematics.

5 We can start this right now. We can start

6 it from today's meeting and move forward.

7 We also need to recognize and conduct the

8 necessary advanced research. Increased sophistication of

9 vehicle technologies requires a more comprehensive

10 understanding from where we are today on both visual and

11 pocket of demand and the implications associated with.

12 Industry and government research is needed

13 to develop practical, repeatable driver work load metrics

14 and procedures that can realistically assess what types

15 of driver interface tasks are appropriate to perform

16 while operating a vehicle.

17 Many of our members are already working with

18 the U.S. Department of Transportation in cooperative

19 research projects to define driver workload metrics.

20 Experts are also working within SAE and a number of

21 committees to try to understand and develop recommended

22 design practices for human-machine interfaces and driver

1   distraction.

2   We should now bring this all together in a

3   more focused process, maybe under NHTSA's leadership or

4   whatever might be appropriate. Key research

5   opportunities include the expansion of the DOT-industry

6   cooperations, the utilization of the advanced driving

7   simulator that we heard about, and in the future vehicle

8   original equipment manufacturers should be able to use

9   these objective workload assessment tools for defining

10   and developing appropriate in-vehicle telematics.

11   The timing of this research is anticipated

12   to support the development and implementation of advanced

13   telematic features. We should also investigate the

14   opportunity to enhance public awareness. In addition to

15   safe vehicle designs, the Alliance supports the driver

16   education and vehicle operator education of continuing

17   safe driving behavior.

18   In the past we have seen successes in this

19   arena with seatbelt use, child seat use, drunk driving,

20   et cetera. We encourage NHTSA to work with interested

21   parties on this important matter, and we would be pleased

22   to participate in it with you.

1 So in summary, let me assure you that the

2 alliance and its member companies recognize and do not

3 minimize the challenge facing us for meeting the demands

4 and expectations of consumers for providing

5 functionality, safety, and security that telematics

6 offers balanced against the implications of driver

7 distraction and information overload.

8 We believe through the collective efforts of

9 all interested partes a better understanding of the state

10 of knowledge of the human-machine interface can be

11 realized, and a forward looking research plan can be

12 defined, and we are ready to work with the agency and

13 other interested parties on this important initiative.

14 Thank you.

15 (Applause.)

16 DR. KANIANTHRA: When you mentioned about

17 OEM having, for example, standardized data bus so that

18 you can employ certain guidelines which are geared

19 towards improving, say, performance --

20 MR. WILBER: Yes.

21 DR. KANIANTHRA: -- but what about the after

22 market? Would you be in support of those also, usually

1   those [use]* standardized canned data buses?

2   MR. WILBER: I think if you're talking about

3   the actual design standardization --

4   DR. KANIANTHRA: Yes.

5   MR. WILBER: -- I think that's going to be

6   an inevitable result of the evolution of these telematics

7   that some kind of standardized design concept should be

8   employed.

9   What I'm saying here is right now each

10   manufacturer, whether they're a vehicle manufacturer or

11   whether a component manufacturer, not only is designing

12   a unique piece of property like this, and it may or may

13   not work very well in a car. What you want to do is say

14   not only do you want to have some responsible design put

15   to that, but you also ought to have an agreed set of

16   guidelines so that if this particular device is

17   introduced in any variety of automobile, it should have

18   some known effect on the driver's performance.

19   And that's something that just hasn't been

20   available, probably still isn't, but we're looking

21   forward in today's meeting, quite frankly, to launch just

22   that kind of issue.

1   DR. KANIANTHRA: Your member companies must

2   have done research on whatever technologies they may be

3   pursuing. Would you support the idea of sharing those

4   research results with NHTSA?

5   MR. WILBER: Well, I think that you'll at

6   least have one of our members following here, and you

7   could certainly ask that question, but certainly I think

8   the research that our member companies have done with

9   regards to the human factors side of operating a vehicle,

10   we should come forward with that and form the basis for

11   some industry broad guidelines on what kind of

12   information should be presented and in what style and in

13   what format.

14   DR. KANIANTHRA: Thank you.

15   MS. McMURRAY: You had mentioned the value

16   of public education, and one of the challenges that we

17   face in NHTSA is I'll give an example of the use of a

18   child restraint system, a booster seat, which is a third

19   step in a child restraint system.

20   People in this country use booster seats at

21   only about a six percent use rate, which is very

22   discouraging, and one of the factors that we find

1 contributing to the low use rate is that states typically

2 don't legislate or require children to be in child safety

3 seats past the age of three.

4   And I was thinking as you were talking about

5 all of the different technology that's evolving to what

6 extent do you believe that drivers somehow have come to

7 believe that if these devices, particularly multiple

8 devices, are made commercially available in the car by

9 the auto makers, that somehow they've been tested in real

10 world conditions, and that the average person can safely

11 operate these multiple devices because they're being made

12 available for the consumer to select?

13   MR. WILBER: I think there's no simple

14 answer. That wasn't a very simple question. What I

15 believe though is that as vehicle manufacturers integrate

16 these systems into their designs, and they know best what

17 the total operating environment of their particular

18 vehicles are, that there's much better chance to

19 minimize driver distraction or interruption as opposed to

20 an outside design being brought into this operating

21 environment, which from its initial development and

22 perception was never intended to fit within a specific

1   vehicle package or specific operating environment.

2   So what I'm saying, I believe, is that

3   vehicle manufacturers, as they integrate these systems,

4   can put in additional safeguards, additional features.

5   For example, if a vehicle manufacturer wants to disable

6   a particular feature while a vehicle is in motion, they

7   can do that within their vehicle system. Someone

8   external, an external design just introduced into the car

9   wouldn't be able to do that, wouldn't be able to do it

10   with the reliability we'd want to have with such a

11   system.

12   So I think that's the advantage that I would

13   see as vehicle manufacturers continue to integrate these

14   kinds of new technologies into their base designs.

15   MR. HARTMAN: Vann, the research that you've

16   done, I assume that it's primarily on automobiles, or had

17   research also been done on large truck designs in

18   association with large truck manufacturing firms?

19   MR. WILBER: Our Alliance members are

20   primarily light duty vehicle manufacturers, although some

21   have heavy truck interests. I think that would be better

22   put to them, but I understand the commercial vehicle

1   implications of this activity.

2   MR. HARTMAN: Right. Do you believe that

3   some of the findings of the research are transferrable to

4   the larger vehicles?

5   MR. WILBER: I would open up the opportunity

6   to look at all research. I think we can learn an awful

7   lot from the aircraft industry. I mean we're not all

8   going to be F-14 pilots. That's for sure, but I think

9   there are some elements that are very important to learn

10   from what they have gone through with the man-machine

11   interface relationship and the human factors.

12   I would not close it off to any opportunity

13   at this point in time. To see how much is transferrable

14   is an open question, but I'm sure there is some.

15   MR. KRATZKE: Vann, I was delighted to hear

16   your suggestion about developing public industry

17   guidelines. We have tried in this meeting to lay out

18   what NHTSA has done, and we've acknowledged that we have

19   a responsibility to do research and to do better public

20   education in this area. I think that most of us

21   acknowledge that people who are using these devices have

22   some responsibility for what they do.

1   I'm happy to hear the piece being put in

2   that the vehicle manufacturers, who are putting devices

3   in vehicles, not cell phones, the navigation systems, the

4   other telematic devices we're hearing about like E-mail

5   coming into vehicles, acknowledge that there is a

6   responsibility for doing this.

7   I had planned to ask you about the efforts

8   by the Japan automobile manufacturers association who are

9   developing recommendations as a baseline for what they're

10   doing. I hope we will do all we can to encourage the

11   sharing of information among the individual members of

12   the Alliance to make sure that these guidelines are put

13   forward and that there is some effort to develop

14   something that we can agree until there is either a need

15   for regulation or more information available to decide

16   there isn't, everyone has some guideline for what you

17   should do, what is acceptable to do in terms of what

18   you're putting in vehicles.   That would be very

19   reassuring to us, I think.

20   MR.   WILBER: Well, we stand by our

21   commitment to do that with you, Steve, and look forward

22   to working with you. Certainly in Japan, for example,

1   navigation systems have been introduced extensively into

2   that arena, and I think there are lessons to be learned

3   there.

4   We also heard about the information within

5   the European Community that is also directly related to

6   this. With our international membership, I think we can

7   reach out and bring this together, and look forward to

8   working with you in developing such industry guidelines.

9   Thank you very much.

10   (Applause.)

11   DR. KANIANTHRA: We're going to go on. We

12   are running just a little behind, but we'll finish up

13   maybe in another 15 minutes.

14   The next speaker if Brian Gratch. He's the

15   Marketing Director of Motorola.

16   MR. GRATCH: I wouldn't say I'm the

17   Marketing Director of the entire corporation, but today

18   what I want to talk about is the Telematics Group, which

19   is the responsibility that I have.

20   And just generally, we've been talking about

21   telematics here. The way that we really talk about it at

22   Motorola is where we're taking cellular and GPS,

1   combining them, wrapping automotive grade software around

2   that, and imbedding it into a card.

3   And what we're able to do there effectively

4   is create a wireless pipe in and out of the vehicle.

5   I put up this first slide here. For those

6   in the back of the room who will have a hard time seeing

7   it, it's a father talking to his son. He says, "Can you

8   imagine? Thirty-three cents to mail a first class

9   letter."

10   And the kid at his computer says, "What's a

11   first class letter?"

12   I put this up just as a descriptor to show

13   that what's happening out there, particularly among the

14   young folks, is there is a connectivity that they see

15   with the Internet, with other aspects of their life, and

16   all of this coming together.

17   Can we go to the next slide?

18   And when we take a look at this

19   connectivity, I'd kind of like to think of it in terms of

20   the connected society in a broad scheme that we look at

21   here.

22   We operate in a number of different

1 environments, in the office environment, in the home

2 environment, on the person walking around the street or

3 an airport or something like that, and then lastly in the

4 car.

5 And what's important to note is that in each

6 environment we access information. Sometimes it's the

7 same information between environments, but the way we

8 access it is different, and it's important to focus on

9 the differences in those environments and not necessarily

10 the content that's being accessed.

11 When we take a look at telematics, we want

12 to think of it's really an emerging safety and

13 connectivity feature. Let's take a look at the car that

14 you'd go to the showroom and buy today. It comes with

15 specialized bumpers on it. It comes with bars in the

16 door, three point seatbelts, air bags. It is delivered

17 to you with a whole range of safety features on it.

18 So if one is driving down the seat and for

19 some reason is in an accident, well, the car

20 manufacturers have provided an environment that is by its

21 nature to try and be safe to you.

22 Well, what telematics is bringing to that

1   then is once there is an accident and, for example, the

2   air bag goes off and say you're on the side of some

3   lonely road, well, when you talk to the public safety

4   people they say that one of the critical areas to avoid

5   fatalities in accidents is reducing the time for an

6   ambulance to get to that accidence, and so in the

7   telematic systems that are being delivered today, one of

8   the features being when the air bag goes off, an SOS call

9   is sent out to a response center. The GPS location is

10 sent out, vehicle identification number and any

11 specialized information about what's going on to that

12 car, which is then relayed to the appropriate emergency

13 response crew, and they can then send to the correct

14 location in a timely manner and try and reduce that risk

15 of somebody potentially dying because they're on the side

16 of the road and no one knows they're there.

17   If we take a look at who's putting these

18 systems on their cars right now, over the past couple of

19 years a number of automotive manufacturers have put

20 telematics on their vehicles. OnStar, which is a

21 division of General Motors, has made a commitment to try

22 and put this on at least a million vehicles within the

1 next year, but particularly what they're looking at is

2 certain lines in the General Motors family right now have

3 telematics as standard, standard equipment, meaning it's

4 not an option. It comes with the car, and other

5 manufacturers are also taking a look at that.

6   Some of the Mercedes vehicles that are

7 coming out, certainly lines in the Mercedes, telematics

8 is standard on that.

9   I've actually done quite a bit of market

10 research here in this country and also over in other

11 parts of the world, as well, to try and understand once

12 we're created this wireless pipe in and out of the car,

13 well, what can we do with it? What types of things are

14 people interested in?

15   And we've looked at it and really taken sort

16 of the pool of interests and put them into four major

17 buckets, the buckets being safety and security at one

18 level, and then this is sort of moving up in terms of

19 complexity, too, complexity in terms of what kind of data

20 you're actually moving into the car; safety and security;

21 navigation related; information; and then ultimately

22 entertainment, all through this wireless pipe.

1   If I take a look at safety and security,

2   really what we're looking at are things like automatic

3   collision notification, remote door unlocks, stolen

4   vehicle tracking, these types of things that you would

5   see in basic telematic systems.

6   When we move up to navigation, that's when

7   we're starting to get into areas like real time server

8   base navigation, real time traffic information, points of

9   interest information, and remember that GPS is in the

10   car, and so with GPS in the car, it's easier to try and,

11   say, identify where a hotel or restaurant or whatever it

12   is you might be looking for.

13   And then we move up on the information side

14   to productivity tools, and then ultimately on to

15   entertainment, and in entertainment we need to be very

16   careful in terms of what is appropriate to deliver into

17   the car for a front seat occupant versus a rear seat

18   occupant, trying to understand that there are different

19   issues with occupants in different parts of the car.

20   Next, please.

21   So in effect, we take a look at the car as

22   the newest converged device. The vehicle right now has

1   on-board computers on it. That's actually what drives

2   your car today. There's internet connectivity at some

3   different levels, and then the various telematic

4   services.

5   Next, please.

6   The car companies, as well, are bringing a

7   tremendous amount of electronics into the vehicle, and

8   the vehicle systems are getting more and more

9   complicated. Now, they're getting complicated in terms

10   of what's happening from an engineering standpoint, but

11   in terms of how they impact the driving experience, it's

12   actually an improvement to the driving experience in

13   terms of more reliable operation, consistent operation,

14   helps with emissions areas, but also the idea is to take

15   these vehicle systems and to try and simplify those

16   systems so for specifically the driver that when

17   information has been delivered to them, it's delivered to

18   them in a passive manner and as low distracting manner as

19   possible.

20   Next, please.

21   One of the ways that we are trying to

22   address the various pieces of information that people are

1   demanding that we're finding in the car is to add a

2   technology role in here to help the driver along, and one

3   of them that we look at is something we are loosing

4   calling a driver advocate technology, and this is

5   something that in effect does a number of things along a

6   spectrum.

7   At one level this is something as simple as

8   lane departure information so that if you, say, want to

9   merge to the left or the right, there are sonar signals

10   as such that are sent out and can determine if there's

11   another car that's too close. That's a dangerous move.

12   But more particularly, specifically to

13   devices that people are bringing in the car. What it is

14   is it's an ability for the car to shut those systems

15   down, for the car to have an intelligence to be able to

16   shut those systems down such that when the driver is

17   maneuvering through a complicated maneuver, saying have

18   to brake suddenly or a sharp turn or something like that,

19   the car knows that this is something that the driver

20   needs to focus all of their attention on, and because of

21   that will, say, do something like mute the radio.

22   If someone is getting their stock tickers or

1 something like that read to them from a text to speech

2 engine on their telematics systems, it would shut that

3 down.

4   If the kids maybe are watching a video in

5 the back seat, it might shut those down. So the idea is

6 to quickly shut down all of this other extraneous noise,

7 so to speak, in the car so that the driver can focus on

8 the task at hand.

9   That then also leads into some of the work

10 that we have done, and we are doing this work with

11 various -- well, certainly with our customers, the major

12 automotive manufacturers. We're doing it with trade

13 associations, such as CTIA and others, but really trying

14 to understand what are the human factor issues in the

15 vehicle. What's going on in that car? What are some of

16 the areas that we need to look at?

17   And I'll just read a few off of here because

18 I know it's hard to read in the back of the room.

19   How does this information need to be

20 presented? What are some of the safety issues? What are

21 some of the user expectations? Because we have to also

22 ask the drivers, you know, how do they -- you know, what

1 is it that they want and how would they like it delivered

2 to them?

3 What kind of servicing provisioning is

4 appropriate and appropriate for different drivers at

5 different -- you know, a child might have and a 20 year

6 old might have a different service provisioning than,

7 say, that person's father or mother, and so on and so

8 forth. So these human factors become really an important

9 issue that we spend quite a bit of time looking at.

10 Okay. The heart of the telematic system is

11 what is called the TCU, standing for the telematics

12 communications unit, and this is the box, the black box,

13 so to speak, that sits in the back of the car, and in it

14 holds the hardware, the GPS receiver, the cellular

15 transceiver board, the mother board where all of the

16 software is on, perhaps a bluetooth node in there.

17 And what is being captured in this on an

18 ongoing basis is air bag sensor information so that we're

19 constantly monitoring sensors in the vehicle; seatbelt

20 information; if there are occupant detection systems

21 built into the car, we can figure out, you know how many

22 people are in the car and where; location; speed. All of

1 this type of information is constantly being monitored by

2 the TCU in the vehicle.

3 Now, at the service center side because

4 remember once the car makes a call, it calls to a service

5 center, the service center also maintains information

6 about that car and at least the primary drivers of that

7 car. So in an emergency situation what is possible to be

8 delivered to an emergency service operation, say, the

9 paramedics going out, are not only how many people are in

10 the car, which could help determine how much equipment

11 needs to be sent out to the scene, but also that the

12 driver is, you know, allergic to penicillin or what the

13 name of this person is, just basic information which

14 tremendously helps the authorities.

15 We take a look at how widespread is this

16 potentially for use in this country. AMPS or analogue

17 cellular coverage right now is fairly widespread in this

18 country as this shows, and in the back of the room what

19 that's showing is all of that blue which covers most of

20 the United States in this picture is the coverage area

21 for AMPS Cellular or analogue.

22 Next, please.

1   And then when you take a digital map, take

2   a look at digital coverage, these are all of the CDMA or

3   TDMA.   These are the plans that, you know, your

4   Votaphone, AT&T, Spring are putting out. This is the new

5   digital map.

6   And so when you lay the digital onto the

7   analogue, you see that there is tremendous coverage. So

8   in a whole safety and security sense, there's a real

9   opportunity here to cover not only a great deal of the

10   population of this country, but also the geographic space

11   of this country.

12   So, you know, you're doing your summer trip,

13   and you're driving from here down to Florida or something

14   like that. There's not an issue of or there's a lower

15   issue of necessarily being out of coverage area.

16   So when we take a look at what this is, is

17   it of paramount -- the paramount concern here is what is

18   appropriate information to be delivered to that

19   environment. So we like to think of it in terms of hands

20   on the wheel, eyes on the road, but allowing people to

21   keep their ears on the world, and it's ears on the world

22   to what they're looking for, but also within a manner

1   that makes sense for them.

2   So in effect, there are a lot of issues.

3   There are a lot of issues that we have been speaking

4   today about. We need to do some more work on it

5   certainly. There's certainly a lot of driver education

6   that needs to take place because this is all new

7   technology an all new equipment that's coming on the

8   scene faster than we can really understand. Probably our

9   kids can understand how fast it's coming on, but for a

10 lot of us it's hard to appreciate it.

11   And so what it is is what is appropriate for

12 what's coming out at the right time.

13   Thank you.

14   (Applause.)

15   DR. KANIANTHRA: Mr. Gratch, how extensive

16 is your research in evaluating the distraction potential

17 or the safety impact of all of these devices you put out?

18   You touched on human factors and such.

19   MR. GRATCH: Right, right.

20   DR. KANIANTHRA: But how extensive is the

21 safety impact [research]* in your company?

22   MR. GRATCH: Because Motorola does not sell

1 a complete radio unit, meaning when you get into your car

2 you're not going to see on that radio face plate the name

3 Motorola on there; it's whatever. You know, it will say

4 Delco or whatever the car company puts on there. We

5 aren't directly involved in those types of user studies.

6 Well, we contribute to that with the car

7 companies because, in effect, a lot of the technology

8 that we're bringing to it enables or doesn't enable

9 different aspects of that, but where we are doing our

10 work is to try and understand a little bit more

11 generically what is the environment. What do people do

12 when they're in their car? What do they like to do? And

13 then to try and take different types of services and in

14 a laboratory environment deliver those services to people

15 in different ways or modalities to understand how do

16 people work through that.

17 DR. KANIANTHRA: Okay.

18 MR. GRATCH: In effect, the short answer is

19 it's sort of early days for us to really give anything

20 definitive here.

21 DR. KANIANTHRA: Through the TCU would you

22 be able to acquire information, for example, a crash

1 occurred; was the phone in use or some other device was

2 in use? Can that information be captured in your system?

3 MR. GRATCH: Well, the short answer is that,

4 in effect, the TCU is actually separate from a telephone

5 system that might be in the car, and remember that most

6 of the phones that are in the car are not installed in

7 the car on the factory line, and the TCU is really only

8 monitoring on-board diagnostic systems that are taking

9 place in the vehicle itself. So it would a difficult --

10 DR. KANIANTHRA: But none of the other

11 devices are directly hooked onto that?

12 MR. GRATCH: No, the TCU hands

13 independently, say, of the radio system. It's

14 independent of, you know, like some of the dash board

15 controls, but really what the TCU is tying into are the

16 vehicle functions that the specific car manufacturers are

17 looking to do.

18 In many respects why the TCU is monitoring

19 these functions is there's a tremendous desire to be able

20 to do on-board diagnostics. So, for example, you're

21 driving down the road and the "check engine" light goes

22 on. Well, rather than going to all the effort of going

1   to a dealer and having them hook it up to the computer,

2   in real time the response center can talk to the vehicle,

3   so to speak, and diagnose the vehicle and diagnose what

4   is the problem.

5   MR. KRATZKE: I am trying to understand the

6   answer you gave to Dr. Kanianthra's first question. You

7   do market research for what people want, and you trust

8   the auto maker or whoever the customer is to decide

9   whether it's safe to provide that to them. Is that what

10 Motorola typically does?

11   MR. GRATCH: No. We are very much involved

12 in the entire end-to-end solution, so the entire system

13 of what's going on. Though Motorola only sells specific

14 pieces of equipment and software to enable telematics to

15 work, we are intricately involved in the entire solution

16 from beginning with the car manufacturers through after

17 the car is sold to understand how that works.

18   MR. KRATZKE: Because I noticed in the

19 presentation that on the entertainment part of it, you

20 noted there's a big difference between what you can

21 provide to front seat and rear seat occupants, presumably

22 based on some information. On the information part of

1   it, the E-mail and voice mail, there was no such

2   distinction.

3   Is that based on work that you've done that

4   says that type of information is safe and drivers can

5   handle it?

6   MR. GRATCH: The way that we take a look at

7   the bucket, so to speak, of the productivity information,

8   personalized news, weather, sports, stock tickers, things

9   like that, we see those as being delivered in an oral

10   environment. So sound only, nothing, say, up on the

11   dashboard, so to speak, on a screen if a car might even

12   have a screen.

13   But in terms of how those are being

14   delivered exactly, those types of services are not

15   commercially available today, and we are doing testing.

16   Actually we have some testing that's taking place later

17   this year to try and address how those services need to

18   actually be delivered, meaning we're not in final beta

19   test to understand how that has to happen.

20   MS. McMURRAY: A related question. You

21   described the car as the news converged device, which

22   sounded to me like we're blurring as a society work,

1 home, and transport, and that Motorola responds to

2 consumer demand. What do consumers want to see within

3 their vehicle?

4 Can you describe the kinds of features that

5 Motorola would automatically reject out of hand as being

6 too risky and unable to be or not worthy of commercial

7 availability and test?

8 MR. GRATCH: Well, certainly one of the

9 things that we would reject would be visually showing,

10 say, an E-mail on a screen in the car. So, for example,

11 if you were retrieving your E-mail, we would not go ahead

12 and deliver a system where an E-mail, all of that text,

13 is sitting, including headers and the "to's" and the

14 "from's" and all of that kind of business is scrolling,

15 you know, on a screen in front of you.

16 There are two other pieces that's important

17 to understand when we talk about telematics here, is that

18 we're not talking about real time browsing, meaning

19 browsing as you do at your desktop at work because when

20 you're on the Internet at work or at home, it's a very

21 graphically driven environment, and in a car it can't be

22 graphically driven. You have to strip all of that out,

1   and you need to deliver then what is the key information

2   this person is really looking at.

3   So this is not real time browsing, and it's

4   not on-board computing as one, say, might run an Excel

5   spreadsheet. We're not taking a PC and shrinking it down

6   and squishing it into a dashboard, into a single VIN

7   dashboard piece here. What we're doing is we're taking

8   elements of information that people are interested in, as

9   you were talking about this seemlessly connecting our

10   different environments, and then delivering it through a

11   wireless connection into the vehicle.

12   But this is not taking your desktop PC and

13   hit the old shrink button on it, no.

14   MR. WOMACK: Presumably that rests on some

15   research that suggests that if you were doing something

16   like that, people are going to be reading their E-mail

17   and going off the road. So your systems are going to be

18   principally oral --

19   MR. GRATCH: Yes.

20   MR. WOMACK: -- in terms of whatever you're

21   delivering?

22   MR. GRATCH: Yes. Voice recognition

1   technology to try and take advantage of text-to-speech

2   technology, voice-to-command technology in there.

3   The other part, and just from a survey of

4   the consumer research that we've done, is this whole idea

5   of people wanting to get into sort of intricate E-mails,

6   as you might say, when they're in the car.

7   Really interesting is that though people

8   spend a lot of time in their car, they see it as kind of

9   a cocoon for them to get away from the rest of the world,

10   and sometimes the E-mail is the last thing that they want

11   to do in their car, and so they like the idea of the

12   safety part, and maybe they like the idea of maybe having

13   alternate entertainment delivered to them, like a book on

14   tape or something like that while they're stuck in

15   traffic on the Beltway or something like that.

16   And the other part, you know, is not

17   necessarily interesting. I think a way to take a look at

18   telematics in this whole feature set is to think about it

19   more as we might think of, say, cable TV. Cable offers

20   you 100 different channels. There's a core service that

21   you always buy, telematics core service, safety and

22   security, but then you can always buy in cable, you know,

1   your sports package or your entertainment or family or

2   whatever.

3   And so there is no one size fits all for

4   telematic services. Some people at some levels just

5   might want the peace of mind of if the air bag goes off,

6   my information is sent out. Other people might have

7   other pieces of, you know, other information, but

8   whatever is delivered needs to be integrated closely with

9   the car manufacturers such that when it is delivered, it

10   is delivered appropriately and safely.

11   DR. KANIANTHRA: Thank you.

12   MR. GRATCH: Thank you.

13   (Applause.)

14   DR. KANIANTHRA: The last speaker before

15   lunch is Terrence Connolly, Director of General Motors

16   Safety Center.

17   Terry.

18   MR. CONNOLLY: Thank you, and thank you for

19   the opportunity for General Motors to comment here this

20   morning.

21   Let me start by saying that regardless of

22   the type of observations that I think you may have just

1   heard from the telematics industry, General Motors still

2   feels very solidly that the number one function of the

3   automobile is to transport people safely from one

4   location to another, and we're going to be very cautious

5   about the introduction of such technologies.

6   Driver attentional demand has long been the

7   leading cause, perhaps the leading cause, of crashes

8   since police reporting began. We've heard a lot about

9   that this morning. I'll keep my comments very brief in

10   this regard because I think they are redundant with many

11   of the other speakers.

12   Whether it's 20 to 30 percent or 25 percent,

13   I think, as AAA suggests or our own data suggest, a

14   driver is typically balancing the driving task along

15   with thinking about other things, having conversations

16   with other passengers, maybe thinking about work, maybe

17   interacting with children, and sometimes distraction from

18   these in-vehicle devices that we're talking about here

19   this morning. All of these elements contribute to a

20   driver's visual and cognitive work load, and ultimately

21   we think safety and properly balancing these tasks

22   remains in the hands and, indeed, in the mind of the

1 driver.

2 We do see an up side of the vehicle

3 information and communications systems and think that

4 they have significant societal promise to improve safety.

5 For instance, the OnStar introductions that were cited in

6 1998 and that have continued have been very attractive to

7 customers. They are very solidly based in the

8 safety/security motivation, as the last presenter

9 referenced.

10 And we have many customers that will offer

11 testimonials on how important OnStar was to so many and

12 help to the vehicle. I think this illustrates our

13 concern for safety first and foremost in terms of

14 introduction of these devices because that's our entry

15 into telematics, and the data, I think, very clearly

16 suggest that reduction in EMS response time could be

17 responsible for as much as about 5,000 lives saved a year

18 in this country.

19 We do think that there's a possible down

20 side though, and we strongly support the proposals that

21 are now active for creating a scientific knowledge base.

22 Indeed, General Motors is going to indicate a genuine

1 interest in participating in those and has participated

2 in those already.

3   Last I'll comment that the interim education

4 steps, and I'll come back to this at the end, I think are

5 really important to helping drivers avoid this

6 distraction because ultimately they've got to make that

7 set of decisions in the vehicle on a real time basis.

8   Let me comment fairly simplistically on

9 driver responsibilities. Responding to changes in the

10 external environment has to be the driver's first

11 priority task. All of the drivers are going to balance

12 this with other tasks, but that's the first priority

13 task. Some amount of refuge from the driving environment

14 maybe sometimes actually contributes to safety, whether

15 that's the radio late at night or whether that's a

16 conversation in the vehicle on a long drive.

17   But proper balance is the key here, and it's

18 very situationally dependent. It's probably clear to all

19 of us that if we took our teenager to drive a vehicle for

20 the first time, you don't want to have some of the simple

21 tasks in front of them. They want to do all of the

22 mirror adjustment, all of the controls adjustment before

1 they ever drive the vehicle. They probably don't want to

2 have the radio playing, et cetera. You learn to balance

3 those things over time.

4   A more experienced driver may well be able

5 to balance those, but still have difficulty with the

6 types of tasks that we're talking about.

7   Go on.

8   As we've clearly heard this morning, with 90

9 million cellular users, the data and communication

10 technologies are already in the vehicle. Most are after

11 market devices right now. We think what we're seeing is

12 the intersection of some key societal trends here, some

13 societal focus areas that we term in General Motors as

14 time squeeze. I'm sure most of us are very familiar with

15 that one, a be in control kind of societal trend where we

16 want to control the environment around us and be in

17 control of it virtually 24 hours a day, and ubiquitous

18 technology, the believe that technology is going to help

19 us do that, to control that environment outside and,

20 indeed, inside the vehicle.

21   Drivers are going to have a need and a

22 desire to use those technologies almost regardless of

1 what we as an auto maker would offer, what regulators may

2 prescribe and police officers enforce, and so forth.

3 It's a societal norm issue, and we are going to need to

4 change societal norms.

5 Indeed, we think attempts by auto makers to

6 stop or limit the use of telematics in vehicles may be

7 somewhat counterproductive because of the use of multiple

8 stand-alone devices, may actually increase the task

9 complexity to the driver rather than decrease it.

10 Rather, I'm going to come from the position

11 that the technology has to help us reduce the driver work

12 load over time, if not immediately.

13 Now, let me say that I want to comment very

14 clearly that although I think attempts by auto makers

15 might be counterproductive, you'll see some clear

16 positions from General Motors, for instance, some of the

17 things cited before. We can draw some clear boundaries.

18 We have no interest in putting visual entertainment in

19 front of a driver, for instance, Sony Playstation or in-

20 car video. We don't see that is really ever being

21 productive. We don't see the modality of communication

22 being there for the driver to accept that.

1   Making the boundaries clear for the more

2   moderate tasks though is a very challenging subject.

3   Simplistically, what's our plan for telematics

4   capability? We need to respond to what the customers

5   want. We're going to do that by enhancing the safety

6   capabilities that in-vehicle communication offers.

7   We've heard about some of those, summoning

8   help, navigation maybe on a turn-by-turn basis

9   navigation.   We need to obviously address the

10   distractions that they might present, and ultimately we

11   want to allow vehicle occupants to use the in-vehicle

12   capability safely.

13   As such, we will need on occasion to assist

14   drivers in making the correct decision on use of such

15   devices, and we've already taken some steps towards doing

16   that in our product, and we intend to approach it with

17   very sound first principles and an objective basis for

18   making those characterizations.

19   Specifically, we've adhered to some common

20   principles here.   We think they could be common

21   principles. Thus far we've developed and implemented

22   these set of principles to guide how information delivery

1   systems are, indeed, designed into our automobiles, and

2   we believe they're going to help the drivers in a proper

3   balance.

4   Simplistically, they are minimizing the

5   hands off wheel and the eyes off road time, minimizing

6   the number of steps required to complete any given task,

7   creating a common interface across the GM platforms, a

8   common look and a common function of system so that

9   training occurs much faster, and limiting the

10 availability of particularly demanding tasks while

11 driving, for instance, locking out some task while

12 driving.

13   Clearly, our intent is to drive these into

14 technical requirements as quickly as possible for

15 engineering vehicle systems. That is as early as the

16 technical understanding allows. Internally we would hope

17 to use a validation plan that includes things like task

18 analysis and utilizing some of the modeling tools that

19 are now just starting to emerge and, indeed, static

20 testing, as well as the objective assessments of our

21 systems.

22   The technology or -- excuse me -- the

1   science is not there quite yet to do most of that, but

2   that's where we're headed.

3   In terms of emphasis areas where General

4   Motors has already put communication data and advanced

5   technology on board, I want to comment on a couple of

6   those. OnStar talked about the automated collision

7   notification, and the basis of that service is, again,

8   safety and security. That's why the customers buy that.

9   It's very clear in our understanding of their purposes.

10   OnStar's automated collision notification

11   brings emergency response to the vehicles rapidly. The

12   access has been basically hands free through a simple,

13   three button system, if you've seen the system, and with

14   the advent of personal calling that we're going to do,

15   the driver interface becomes voice activated.

16   We're very solidly behind voice actuation.

17   We understand that it's not the end all, and it doesn't

18   resolve all of the cognitive work load issues by any

19   stretch of the imagination, but part of what OnStar is

20   doing is off-loading tasks to an advisor in a remote

21   location. We're off-loading tasks from the driver of the

22   vehicle.

1   And, yes, in future model years we have more

2   capability coming. For instance, we're introducing a

3   system this fall that integrates customer requested on-

4   board capabilities with a wireless communication

5   platform, and it's activated through voice command.

6   This decision was made based on some fairly

7   clear results of the voice interface being a better

8   interface.

9   GM is anxious to use technologies to improve

10 vehicle safety, and indeed, we have pursued them from the

11 human vehicle interface consistently through many

12 decades. As an example, our Internet submission to the

13 forum references some human factors activity undertaken

14 since our introduction of heads-up displays, a very

15 important change in terms of the opportunity for a

16 communication mode to the driver, and it allows a very

17 clear benefit in terms of detecting things like

18 pedestrians in the external environment when using that.

19   Stability enhancement might be another

20 interesting one to reference. This is maybe an ideal

21 example of how we ought to interface with a driver. Most

22 of them, the system will be fully transparent to it

1 simply does the right thing and does the intuitive thing

2 that the driver expects the vehicle to do. I think

3 that's got to be the gold standard for where we go in

4 telematics capability.

5 We do think, as I mentioned, that there is

6 an up side potential here where in-vehicle information

7 and communications systems have very significant societal

8 promise in summoning help and navigation and traffic age,

9 and indeed in managing time. That's obviously part of a

10 societal pressure that we all have to respond to.

11 We're very committed to scientific study to

12 optimize those benefits. Later this week, a Vice

13 President of GM will discuss at the Intelligent Vehicle

14 Forum our involvement in co-sponsoring what shows there

15 as ACAS-FOT, which is the collision avoidance systems

16 field operational test.

17 We are also deeply involved with several of

18 our industry partners, notably Ford since 1995, on the

19 Collision Avoidance Metric Partnership, which has

20 basically been developing objective bases for

21 characterization of some of the key human vehicle

22 interface problems.

1   There is an active proposal right now from

2   that group with several other manufacturers also

3   represented that would develop a scientifically sound

4   basis for characterizing the effect of such devices on

5   driving performance.

6   Let me also in this slide suggest that the

7   harmonized international research activity also offers a

8   very good forum, I think for manufacturers and

9   governments to interact on this. It has outlined already

10   some very specific tasks, which are very appropriate

11   tasks. It probably needs to be energized and funded

12   better, but there's a forum there all ready and waiting

13   for us.

14   And I'll also emphasize that GM will

15   continue to do internal work and has a very strong plan

16   in that regard.

17   Last, I want to close with some needs and

18   challenges on what I see as needed here. A few comments

19   on product development first.

20   The challenges for product development both

21   of the intelligent vehicle capabilities for safety

22   enhancement, how do we use all of this data capability,

1   whether it's enhanced digital mapping, for instance, to

2   enhance what you can do with things like stability

3   enhancement systems, or how do we use other types of data

4   -- maybe it's cooperative infrastructures towards an

5   intelligent vehicle environment -- is very, very

6   important, and it's a matter of using the technology to

7   reduce the driver burden, as I commented on before.

8   Some of that is operator communication

9   interface innovation. We've seen some good work done by

10 the supply industry in that regard.

11   As Vann Wilber commented, integrated systems

12 are a tremendous opportunity. We think right now the

13 distraction provided by the multiple stand-alone devices

14 that many customers are attempting to use in the vehicle,

15 some of them are really not telematics devices, by the

16 way. They're personal data assistance and so forth.

17   We think that the distraction eliminated by

18 integrating many of those may be of very significant

19 benefit to our drivers.

20   Last I'll comment on dialogue management a

21 little bit. This was referred to as the advocate in the

22 Motorola discussion. General Motors views that part of

1 the vehicle's function in the future is going to need to

2 be to control that dialogue with the driver. We've got

3 some very rudimentary approaches to that already.

4   For instance, in the Saab 95, warnings which

5 are nonessential warnings, for instance, the low fuel

6 warning, will get delayed if the vehicle knows that the

7 driver is in the middle of some task that involves driver

8 effort, like a turn, for instance. With on-vehicle

9 sensors, we can ascertain much about the driving

10 environment, and although that's a very rudimentary

11 example, we think that the opportunity for dialogue

12 management in the future is very great.

13   As was commented before, the phone doesn't

14 have to ring in the middle of a busy driving ask. In

15 fact, the phone doesn't have to ring at all. Maybe the

16 conditioned human response to the phone ringing would

17 change with a different signal.

18   I think there are many scientific challenges

19 here. I won't go into these in very much depth because

20 many of the other speakers have, but establishing a

21 scientific basis for industry or regulatory policy has to

22 be a very high priority objective, and establishing the

1   criteria for what does constitute distraction and what

2   are the thresholds of driver burden, et cetera, and how

3   do we quantify all of that is really, really important.

4   I'll emphasize though that the science is

5   not going to take us away from this problem because

6   ultimately it gets to the societal norms, as I commented

7   before. As the data indicates very clearly now, drivers

8   differ greatly in their capability to manage the

9   distraction and the telematics related task, particularly

10   some of the data that I think NHTSA has developed, but

11   has not had a chance to share this morning is very

12   dramatic in terms of young versus older drivers, and I

13   commented before on naive versus experienced drivers.

14   Ultimately, I believe that the technical

15   capability in these areas is going to progress much

16   faster than policy activity probably could, and the most

17   expedient approach, and perhaps the only practical

18   approach to deal with this rapid rise in usage is going

19   to be education.

20   I think that demands very significant roles

21   for each of the telematics equipment and service

22   providers, the federal, state and local governments, auto

1   manufacturers, of course, insurers, and many

2   nongovernmental organizations.

3   I was very pleased by some of the comments

4   that Ms. White made before about the appropriateness of

5   using organizations, grassroots organizations like a MADD

6   or the Network of Employers for Traffic Safety, very

7   significant opportunities there.

8   In closing, I'll comment that, again, I

9   believe we're dealing with societal norms, and we do not

10   see roles that are exclusive to any one of the players on

11   that page. Indeed, I think all of the players on that

12   page have roles, and the pervasive educational campaigns

13   that will make the risks of personal choices more

14   tangible, I think, are probably the most important things

15   we can do.

16   Thanks to NHTSA for initiating this forum.

17   (Applause.)

18   DR. KANIANTHRA: If I may ask one quick

19   question, you have had so many years of exposure to the

20   OnStar system, four years or so now.

21   MR. CONNOLLY: About three.

22   DR. KANIANTHRA: About three. Have you had

1 any crashes while people were talking to your operators

2 []*at the other end?

3   MR. CONNOLLY: Not to my knowledge. I guess

4 I have not seen any data that suggests we have.

5   DR. KANIANTHRA: Thank you.

6   MR. CONNOLLY: I suspect that it would come

7 to me immediately, by the way.

8   MR. WOMACK: You alluded twice to a concept

9 of societal norms, and going back to the Motorola

10 presentation earlier, I'm afraid that one of our societal

11 norms in this country is we see it and we want it, and a

12 lot of this is very, very abysmal technology. It is a

13 rush toward incorporation of this technology, and yet at

14 the same time we're talking about the degree to which the

15 data is not presenting there.

16   And my concern is that we're following so

17 much, as you would say, the societal norm that we would

18 be concerned from a safety agency point of view that

19 appropriate brakes be put on some aspects of this until

20 we have some of that data that may point in a more

21 helpful direction toward restraints.

22   If the distraction value of one type of

1   technology is superior to that of another, let's go that

2   direction, but I think the environment we're trying to

3   create here or to this meeting is to say there are

4   concerns that need to be addressed. We shouldn't just be

5   heading in the shortest possible line toward fulfillment

6   of the societal norms.

7   That's just kind of a statement, not so much

8   of a question, but it's an observation on what I'm

9   hearing.

10   MR. CONNOLLY: Right. I agree completely.

11 In fact, I'll say as someone who used to be a very

12 significant cellular telephone user in the vehicle, I

13 think the education that's happened here over the course

14 of the last year for me personally has made it very

15 obvious to me what kinds of risks I'm assuming in doing

16 that and changed my behavior, and I think that's what we

17 need to do for the rest of America as well.

18   MR. PANIATI: You talk about the desire for

19 integration into the vehicle and elimination of the

20 peripherals. To what extent are you working on actually

21 inducing people to, for example, dock their cell phone in

22 the vehicle as a way to get them to allow you to manage

1 the information using the power of the vehicle as you

2 allude to.

3 MR. CONNOLLY: We're trying to do that by

4 offering them an integrated system. That is, I guess,

5 more or less exactly the philosophy that I come from in

6 this, is the customer will use such devices in their

7 vehicle. They can go down to Best Buy or Circuit City

8 and get them right now. All they need is a 12 volt power

9 supply.

10 We think we can make that a much safer

11 environment if we do integrate it into the vehicle, and

12 thus, we are, indeed, offering -- OnStar has personal

13 calling capability. This fall we will have navigation

14 systems, et cetera.

15 But we are going to draw some lines on

16 things that we think are appropriate functions that can

17 be performed while the vehicle is in motion.

18 MR. PANIATI: But are you pursuing it all

19 actually accommodating them bringing their own device,

20 but docking it into your vehicle as opposed to you

21 providing the device to them?

22 MR. CONNOLLY: Yes. I believe it requires

1   an incredible amount of industry standards in terms of

2   how we move information and so forth, but we do think

3   that certainly the customer desire is to have a cellular

4   phone that they can remove from the vehicle and take with

5   them.

6   MR. KRATZKE: Can I just clarify a little

7   bit of your presentation? I noticed up there that you

8   want to drive what we know into technical requirements as

9   early as technical understanding allows, and that we need

10   a scientific basis for industry or regulatory policy

11   decision.

12   That's a little bit different from Mr.

13   Wilber's commitment for the vehicle manufacturers to work

14   together to try to develop a voluntary standard now based

15   on what we know now. Even though it's not all of the

16   answer that we need, it suggests that manufacturers,

17   vehicle manufacturers, accept that they have some

18   responsibility for ultimately happen. Whether the driver

19   is ultimately responsible, the vehicle manufacturer

20   influences that choice, and the vehicle manufacturers

21   don't want to be in a position to putting technologies in

22   a vehicle without knowing or without considering the

1   safety implications of that.

2   And I assume that the presentation from Mr.

3   Wilber -- I know General Motors has done work in this

4   area, and that you would be part of that. I just wanted

5   to be certain that the presentation we just saw wasn't

6   necessarily not supportive of the Alliance position.

7   MR. CONNOLLY: It's very supportive of the

8   Alliance position. My believe is that the agreements

9   that we will make as an industry or possibly even from a

10   regulatory policy standpoint right now would necessarily

11   be based on nonscientific metrics of what's going to

12   happen in the vehicle. The European principles are that

13   way. The 15 second rule is effectively that way. The

14   JAMA principles are somewhat that way, and we will

15   certainly participate very strongly with that activity.

16   We just need to be able to drive it into sound science as

17   soon as possible.

18   Thank you.

19   DR. KANIANTHRA: Thank you very much.

20   MR. CONNOLLY: Thanks.

21   DR. KANIANTHRA: Apologize --

22   (Applause.)

1   DR. KANIANTHRA: -- for being just a few

2   minutes late, but we will assemble here at 1:30.

3   Those of you who are very hungry, you can go

4   down to P1. Right out here, the two elevators on the

5   right go down to P1. There is a cafeteria there. That's

6   the shortest and quickest way to get lunch.

7   (Whereupon, at 12:47 p.m., the meeting was

8   recessed for lunch, to reconvene at 1:30 p.m., the same

9   day.)

10

1   A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

2   (1:39 p.m.)

3   DR. KANIANTHRA: I'm glad so many of you are

4   back. There will be a few more trickling in, I'm sure.

5   The next speaker on the program is Dr. Mark

6   Edwards. He's the Managing Director of Traffic Safety

7   Department at AAA.

8   Mark.

9   DR. EDWARDS: We won't need it for a while.

10   We're going to work our slides together. So I hope no

11   one is offended by the lack of technology, but the

12   technological device I had prepared to give my

13   presentation gave up the ghost. So you're stuck with a

14   few overheads.

15   I would like to thank NHTSA, FHWA, DOT for

16   giving AAA the opportunity to express its views on what

17   we think is the research that's needed to insure that the

18   growing array of in-car telematics devices do not detract

19   from the safe operation of the vehicle.

20   And I'll just repeat that just so everybody

21   understands where we're coming from. Our concern -- try

22   to speak up?

1   PARTICIPANT: Thank you.

2   DR. EDWARDS: How's this? Can you hear me

3   now? Would you like me to start over?

4   PARTICIPANT: No.

5   (Laughter.)

6   DR. EDWARDS: Okay. Well, I just said

7   thanks for giving us the opportunity to express our views

8   on what we think is the research that's needed to insure

9   that the growing array of in-car telematics devices do

10   not detract from the safe operation of the motor vehicle.

11   There are many perspectives from which one

12   can approach this issue, and no doubt you've heard a lot

13   of them, but we are approaching it from a very simple

14   perspective, and that is we don't want telematics devices

15   that distract from the safe operation of the motor

16   vehicle.

17   Now, that's a simple goal. It's very hard

18   to achieve. I think all of us recognize that we're at

19   the beginning of this kind of new revolution in

20   communications, and this revolution is just like every

21   other revolution that has taken place in the world. Some

22   of the eventual consequences of this revolution will be

1   good for us and some will be not so good. The reality is

2   that only time will tell. In the end we will have the

3   perspective we need to understand what we are doing now.

4   Unfortunately we don't have that perspective

5   at the moment. The challenge in this whole issue is for

6   us to balance these good consequences and unpredictable

7   bad consequences in such a way that we do not throw the

8   baby out with the bath water.

9   Okay. If we've learned anything in the 30-

10   some odd years of organized national efforts to address

11   transportation safety in this country, we have learned

12   that when we do things based on a fundamental scientific

13   understanding of the issue, safety gets better. When we

14   don't and, in fact, rely on opinions, hearsay, guesses,

15   hunches, gut feel, coin flips, or anything else, safety

16   tends not to improve.

17   And I guess my biggest personal concern is,

18   being nothing but a safety person, is that we don't get

19   trapped into doing something on the basis of hunches

20   instead of doing something on the basis of reality.

21   And when it comes to driver distractions,

22   in-car telematics, and safety, I firmly believe that what

1 we don't know greatly outweighs what we know, and the

2 fact that we don't know a lot means that we cannot make

3 much real progress at the moment, and indeed, we should

4 not suggest that we can make real progress until we know

5 more.

6   And what we know more is really some simple,

7 one dimensional stuff, and for the most part it is not

8 the stuff of solutions, and I'd like to share with you at

9 least what I think we might know, and I'll give it as

10 many caveats as I can, and talk about where that's

11 leading us.

12   So if you'll put the first slide up, again,

13 I apologize. The rest of it is on my napkin, but I'm not

14 going to give you a bunch of statistics. I think it's

15 just easier to talk from what statistics and research

16 tells us.

17   At the moment, what we know is that

18 distraction is a prevalent factor in crashes. Our

19 estimates range dramatically, but I think at least at the

20 lowest level that anyone would hazard a guess, that

21 distractions are a prevalent enough factor in the driving

22 environment that they're threatening safety, and

1 therefore, the issue deserves our attention and we ought

2 to be trying to understand it and doing something about

3 it.

4   I think the other thing that we know, based

5 on what limited information we have at the moment, is

6 that we have many distractors.   There are lots of

7 distractors and none predominate. So it means it's not

8 like in the case of polio where we have a single virus we

9 have to kill if we want to improve the chances of people

10 not getting polio. We have a lot of things that distract

11 in cars.

12   We don't have one single problem that

13 predominates and needs to be solved, and in the end that

14 means we're going to be doing lots of different things

15 perhaps to address these distractors.

16   This may be a point of contention. I'll

17 give you some data that supports the lesson, but the last

18 point that you can hardly read there is that telematics

19 devices are not the major distractor in the driving

20 environment at the moment, at least when you ask drivers.

21 We may all think they are. We may be very concerned and

22 should be concerned about their safety and their

1 prevalence and their growing prevalence in the driving

2 population, but the reality is when you ask people to

3 talk about sources of distractors that they think affect

4 their safety and that they do in cars, they do not list

5 these devices as the major one.

6 And with that we can go to the next slide,

7 and I'll just give you those survey results. I didn't

8 bother to put in a lot of the percentages. I didn't

9 bother to list the whole surveys. I will tell you that

10 all three of these are nationally representative samples.

11 They're all conducted by different polling organizations.

12 They were all done at different times, and what you can

13 see is that talking on the phone, which is the subject of

14 interest on most of our minds today and has been recently

15 with the advent of the mobile phone, ranks fifth, not

16 first, but fifth.

17 Now, if you ask people to rank telematics

18 distractors, obviously the phone would come first, but

19 this is just asking drivers in three different times, in

20 three different ways, in three different environments by

21 three different polling organizations, "What do you do

22 that you think is distracting to you in a car?"

1   And talking on the phone is last, and I will

2   tell you what. I was surprised by that. You may or may

3   not be. I will tell you what threw me is that if you

4   think of the meteoric growth in cell phone use between

5   1994 and 2000, you would have expected something to

6   change, and what is fascinating to me is that talking on

7   the phone remains at about 20 percent.

8   So I think that's really about all we know.

9   We know that distractors can contribute to crashes. We

10   know that there are lots of distractions out there.. We

11   know that none predominate, and at least those of a

12   technological nature are not leading the pack at the

13   moment.

14   Let's talk about what we don't know. Well,

15   we don't know why Windows '98 is going off in the

16   background, but I think we solved that.

17   Okay. What we don't know is how distraction

18   contributes to crashes. We have not established that

19   causal link. All right? And I will suggest to you that

20   we have some research evidence that says that it is

21   likely not a simple case of taking one's eyes off the

22   road, but rather, taking one's mind off the road, and

1   therein lies the rub.

2   If the problem is intellectual, mental,

3   cognitive distraction, whatever you want to use, whatever

4   word you want to use, if that is our problem, that's a

5   different animal with which to deal than simply picking

6   up things on the floor as being a distraction.

7   So let me give you very quickly three pieces

8   of research that have led me to that conclusion, and

9   perhaps will lead you there as well. The first one was

10   a very simple study by the AAA Foundation for Traffic

11   Safety, where we looked at how hands free phones compared

12   as a distraction to tuning a radio. Tuning a radio is

13   our baseline comparison.

14   Well, lo and behold, what we found is that

15   the hands free phone was just as distracting as tuning a

16   radio. It contributed just as much to the driver's work

17   load as giving them a manipulative task of simply tuning

18   a radio.

19   Well, what's the implication for that? I

20   think there are two. One is that the cognitive or

21   thinking task is as equally distracting as a psychomotor

22   test. That's a conclusion you could easily reach.

1   So thinking about something can be just as

2   distracting to the driver as doing something with one's

3   hands, tuning a radio, adjusting a cruise control,

4   digging for something in the glove compartment,

5   unwrapping a sandwich, putting a straw in a drink. All

6   of those things are really psychomotor tasks.

7   The second thing it tells me right off the

8   bat if you believe it is that if the problem is

9   intellectual distraction, hands free phones are not going

10   to eliminate the distraction because they're just as

11   distracting as radios, and so the simple notion that we

12   can just go to hands free phones or hands free operation

13   of any of these devices at last on the basis of this

14   study would suggest we're not likely going to eliminate

15   them as a source of distraction. We might perhaps

16   mediate their distraction, but we're certainly not going

17   to eliminate it.

18   Okay. The second study was recently

19   published in the Journal of Experimental Psychology in

20   which drivers were given cognitive or thinking tasks to

21   engage in while driving a car. These were tasks that

22   asked them essentially to driver down the road and think

1 about some things, and they had to engage in some

2 deliberate thinking tasks.

3 And lo and behold, look what happened. The

4 same thing happened as if they were engaged in a

5 psychomotor task that took their eyes off the road.

6 Their field of view diminished, that is, it shrunk, the

7 areas of which the environment that they observed. They

8 had a reduction in their travel speed, slowing down,

9 perhaps indicating they're trying to manage their work

10 load better.

11 The frequency with which they scan the

12 environment diminished, and they had fewer mirror

13 glances. The result of that study says if you simply ask

14 somebody to think about something, it has the same

15 effects on many safe operating practices as doing

16 something with your hands or feet, let's say.

17 Okay. One more. This last one was kind of

18 an interesting one. It kind of gets right to the heart

19 of the matter. This was a study done by the Insurance

20 Corporation of British Columbia, which by the way is a

21 government organization, not a private insurance

22 organization.

1   They gave drivers tapes to listen to. All

2   they did was they weren't required to take their eyes off

3   the road. So they gave them thinking tasks that did not

4   require them to take their eyes off the road, and what

5   did they find?

6   Well, to me the most important thing they

7   found is when you're listening to a message, they present

8   them with a left turn scenario where they had to turn

9   left in front of a car while they were listening to what

10   was being told to them. The gaps that they were willing

11   to accept got shorter and shorter and shorter.

12   What's really happening is they're engaging

13   more and more in unsafe driving practices. They're

14   behaving less and less safe as they're being distracted,

15   not more and more safe, and I think all of us would think

16   intuitively that when we were engaging in some activity

17   that was distracting, that we'd be careful We'd be a

18   little bit more safe about it. Well, this suggests that

19   perhaps that's not the case.

20   Well, let me see. What do we have next?

21   What else don't we know?

22   We really don't know how much distraction is

1 too much distraction. You should never forget that

2 humans will always be distracted. We're distracted all

3 the time. Some of you right now in this meeting are

4 distracted. We're going to stay distracted our entire

5 lives.

6 So the question is not am I distracted or

7 not or do these devices distract or do they not or do

8 these activities distract or do they not, but how much

9 distraction is too much. Clearly in some environments we

10 already know that driving doesn't demand 100 percent of

11 the driver's attention. We also know from research that

12 in some environments the driver tasks the man more than

13 100 percent of driver's attention, and we know that in

14 some environments for brief periods of time that people

15 can operate in excess of their capacity by small

16 percentage amounts.

17 So the question is not should we eliminate

18 distractions. The question is how much distraction is

19 too much.

20 I think the second thing we don't know is we

21 don't know how to quantify. That is, we don't have a

22 good measure of distraction, and for us scientific types,

1   if we can't weigh something, measure something, detect

2   something mass, observe its presence in some way, we

3   really struggle with understanding the phenomenon, with

4   developing solutions, with putting them in place, and

5   with evaluating their effectiveness.

6   So it's a very simple thing, but at the

7   moment we really don't know how to quantify distraction.

8   Okay? We don't know when safety diminishes. If you

9   think about it, there are times when the level of

10   distraction while you're driving is probably benign.

11   There literally are times when you can drive down the

12   road and do one or two or three things.

13   There literally are times when you cannot

14   without engaging in unsafe operating practices and

15   perhaps without having an accident. So when does safety

16   diminish? When do we achieve the level of distraction

17   and the level of demands on the driver that we produce an

18   unsafe environment?

19   We don't know when that is. If we don't

20   know when it is, we don't know how to ameliorate it.

21   How do driver and environmental factors

22   interact to affect safe operation? We don't really

1 understand that very well. We don't necessarily know if

2 there are gender relationships. We don't know if there

3 are age relationships. We don't know if there are

4 experience relationships, except beyond the novice

5 effect, and we're all familiar with the novice effect,

6 but novices at anything can't do anything as well or as

7 fast or do as many things as experienced people, and we

8 really don't know much more than that in a systematic

9 way.

10   Fire away.

11   What do I think is our most critical

12 unknown? It's simply this. We don't understand the

13 mechanism of distraction and how it interacts to affect

14 safety, and that being the case, we don't know how to

15 mediate it.

16   And it goes back to the point I made at the

17 very beginning. Our interest, we think, should be

18 focused on how do we make certain that these devices do

19 not -- anything that goes on in a car, device or not, any

20 activity, doesn't distract the driver to the point that

21 safe operation diminishes.

22   But we don't understand how it works. We

1 don't have a good measure of it, and thus, we don't know

2 how to mediate it.

3   We've talked about eliminating it. That's

4 been one proposal. Well, in the 1930s we talked about

5 eliminating radios in cars, and we had legislation. We

6 had issues. We had many of the debates that we're having

7 today.

8   And if we ask ourselves today should we

9 eliminate radios in the car, I don't think any of us

10 would agree, and I think we would all come to recognize

11 that in this mobile society the radio in our car has

12 become our civil defense network. For those of you that

13 don't live in Florida, it's how we get out of the way of

14 hurricanes, and we never foresaw the radio in a car being

15 used in that way in 1930, and it's why it's so important

16 that we have perspective and why I get concerns about

17 efforts to solve this problem by eliminating it.

18   Maybe we ought to be aiding the driver, and

19 I know you've heard from others prior to my speaking, and

20 you'll hear from those that follow me, that maybe we

21 ought to look at ways of aiding the driver. Training is

22 a way to aid the driver. Designing the car so that it

1 understands that in certain environments that the driver

2 needs not to be dealing with these issues as a way of

3 aiding the driver.

4 It's improving the quality of displays and

5 controls. Maybe we ought to try managing system

6 functions. You know, maybe smart cars and really get

7 smart and start to help manage functions so that we don't

8 overload the driver because that's really the challenge.

9 Next slide.

10 Well, what are we doing about it? We're not

11 just up here talking about it. We're actually trying to

12 do something about the issue of distraction. We're

13 actually joining with a number of clubs around the world

14 to develop and deploy our own testing protocol, and what

15 we will be doing is putting devices in vehicle and in a

16 standardized environment, measuring the effect they have

17 on driver workload.

18 Now, we have so many unknowns about

19 distraction that it gets hard to make a lot of progress,

20 but I think that one of the things that we can do is we

21 can come to understand just how much these devices used

22 by real people in a real environment add to their real

1   work load.

2   We'll not necessarily be able to write that

3   directly to accidents. In fact, we won't. Our goal is

4   to understand how these devices add to the driver's task

5   in the car, and we will be doing that by comparing the

6   use of these devices under a protocol to a set of

7   standardized scenarios, carrying on a conversation with

8   a passenger, tuning the radio, any of the other things

9   that you can think of.

10   Our   plan   is   to   be   testing   on   three

11   continents, Europe, Asia, and the United States. We hope

12   to have these protocols in these centers established, and

13   we know that we'll have them established in the year

14   2001.

15   What's our goal in doing all of that? Our

16   goal is to work with the industry, and by "the industry"

17   I mean the community at large, to stimulate the

18   development of the least distracting devices that's

19   possible. I think that's a logical first step.

20   Let's at least, as these devices come into

21   the market and get created and get offered to consumers,

22   let's do whatever we can to make sure that they are as

1   undistracting as they can possibly be, and that way we

2   can give consumers good choices.   We can give

3   manufacturers and other users of these devices good

4   information, and that's our goal.

5   Our second goal is to try to begin to

6   discover how the mechanism of distraction affects work

7   load, and that's something we really don't understand.

8   And I have no other slides. I always have

9   something else to say, but without my slides, what I'd

10   like to suggest is that our belief as to the research

11   that should be undertaken is reflected in what we don't

12   think the questions for which we have no answer, and we

13   would really like to see the government and the industry

14   start to focus in on quantifying distraction and

15   understanding the mechanism of distraction in the way

16   that we can move forward in a scientific environment

17   because we're comfortable that if we move forward in that

18   environment, we'll in the end have good effects on

19   safety.

20   Will there be adverse consequences? I have

21   no idea, but I'm sure there will be.

22   And thank you very much for your time.

1   (Applause.)

2   DR. KANIANTHRA: Mark, one question. You

3   mentioned something about devices are not the major

4   distractor. Do you think that the design of those

5   equipments and also the ease in using it can make a

6   difference?

7   DR. EDWARDS: Oh, yes, I definitely think

8   so, and that's in part why we've established this

9   protocol, and it's our intention to start measuring these

10   devices.

11   We think there are some real gains to be

12   made in design, and we think there is some real gains to

13   be made in ease of use, and we may find that there's some

14   real gains to be made in mediating how these devices work

15   in the car in some environments.

16   MS. McMURRAY: Mark, what I'm not sure about

17   is this testing protocol in these three countries. What

18   are you measuring? Are you measuring something before

19   you're baselining some level of competency before and

20   then after introduction of these devices you'll somehow

21   measure the degradation of the driving task?

22   DR. EDWARDS: Yeah, we're actually setting

1 up laboratories, and our goal is, among this group of the

2 world's automobile clubs, our goal is to establish three

3 laboratories. We don't know that we'll need three, but

4 each of us on different continents think our continents

5 are unique, and so I'm sure that we'll proceed with three

6 labs.

7   But what we're doing is very simple. We're

8 going to take some pretty standard, everybody driving

9 activities that will serve as our baseline, driving in a

10 city environment, let's say, by yourself; driving in a

11 city environment with a passenger; driving in a city

12 environment with a child in the back seat or tuning a

13 radio. Pick whatever you want. We haven't picked the

14 scenarios yet.

15   What we'll do in that environment is simply

16 measure the amount of work that's imposed on the driver

17 to perform those tasks, and you actually do that by

18 measuring the amount of spare capacity they have left.

19 It's an odd technique.

20   Once we have that, we'll have baselines, and

21 what then we'll do is repeat driving tasks without those

22 distractions, but instead put devices in the car and

1 require people to use them as their design, and we will

2 measure their effects on workload.

3   So the question then gets to be is this

4 device any more distracting than tending to your child in

5 the back seat. Is this device any more distracting than

6 carrying on a conversation with a passenger? Is this

7 device any more distracting than negotiating city

8 traffic?

9   It doesn't have anything to do -- since we

10 can't directly relate the amount of the level of

11 distraction to safety, we're just trying to find out if

12 this is more than things we already know.

13   MS. McMURRAY: So it will be self-described.

14   DR. EDWARDS: Yes.

15   MS. McMURRAY: The persons will describe

16 what was happening to them as you were adding or taking

17 away distractions.

18   DR. EDWARDS: No. We'll actually give them

19 a little task. It will probably be a rote memorization

20 task where they'll have to remember, let's say, five

21 letters at random in a row or five numbers at random, and

22 let's say that they get -- the easiest way to think of it

1   is when they're driving through city traffic by

2   themselves they get 80 percent of them right. So that

3   would be one.

4   If they're driving through city traffic

5   doing that and also operating an in-car navigation device

6   and they get four of them right, it would be a 50 percent

7   increase in the workload. That's a simply example, but

8   that's basically how this technique works.

9   MR. HARTMAN: Mark, a follow-up to that.

10   With the introduction of different variables into the

11   study design, the child in the back seat, the radio on,

12   other things that you possibly may consider, size of the

13   vehicle, fatigue? Would these also be other variables

14   that you could introduce into the studies?

15   Yes, we could. At the moment we're actually

16   in the process of deciding which one of those we're going

17   to control and which one of those we're going to allow to

18   vary, but once the protocol is established, we'll be able

19   to do any of those things. We'll be able to vary any of

20   those variables.

21   We're going through the debate now of having

22   to be simulator based or having to be test track based.

1 You know, we clearly eliminated doing it on the open

2 road. So it will be one or the other. So any thoughts

3 you had we'd love to have.

4   DR. KANIANTHRA: Thank you.

5   DR. EDWARDS: Okay? Thank you, Joe.

6   (Applause.)

7   DR. KANIANTHRA: The next speaker is Tom

8 Wheeler from Cellular Telephone Industry Association.

9 He's the President and CEO.

10   Tom.

11   MR. WHEELER: Thank you, sir. Thank you.

12   Now I think I've got a device to push.

13 Thank you very much. Aim it over there, okay? Great.

14 Yeah, that would be great, yes. Thank you.

15   Thank you very much for the opportunity to

16 make this presentation today, and let me begin by

17 commending the Department of Transportation and NHTSA for

18 this inquiry.

19   PARTICIPANT: We're not able to hear you.

20   MR. WHEELER: Okay. I'll start yelling.

21   But commend you for this inquiry and for the

22 manner in which it has been conducted on the Internet,

1 which has been truly terrific in terms of opening up the

2 ability to comment and participate.

3 As NHTSA's last look at wireless phones in

4 the car found, there are a litany of benefits of having

5 a phone in the car, including faster emergency response,

6 quicker information to authorities about hazards or road

7 rage or whatever, heightened personal security, but yet

8 at the same time, there are challenges that are evidenced

9 by the presence of the phone in the car.

10 One hundred and eighteen thousand times a

11 day somebody uses their wireless phone to call for

12 emergency help to save a life, to stop a crime, to help

13 somebody in need, but as the NHTSA studies and others

14 have shown, improperly used, the phone can be a

15 distraction.

16 The question is: what do we do about it,

17 especially when this potential distraction is such a

18 significant safety device?

19 I'd like to start with this as the basic

20 underpinning and to add to it a statement, as they say in

21 the U.K., full stop, period. No phone call is worth a

22 life. The question is: what do you do about a phone in

1 the car to make sure that people are aware of their

2 responsibility and are using the phone appropriately?

3 Every time you get behind the wheel of a

4 car, you have to make judgments, and since we can't get

5 in the seat with the driver, how do we help people make

6 those judgments?

7 Now, some suggest legislation. This, of

8 course, overlooks the fact that there are already laws on

9 the books in all 50 states dealing with distracted

10 driving and also overlooks the aspect of the phone in the

11 car as a great safety tool.

12 We agree with what the California Highway

13 Patrol told the California legislature when they were

14 considering legislation about wireless phone use in cars,

15 and I quote: "Education should be a key component of any

16 effort to reduce the risk of traffic collisions resulting

17 from cellular phone use and would prove more effective

18 than sanctions."

19 This is a message that is repeated by many

20 of the studies that address the use of wireless phones in

21 your car, and that is why the wireless industry has

22 developed the safety or most important call program,

1 which has been adopted both by the service providers, the

2 people you get your wireless service from, as well as the

3 manufacturers of the equipment.

4 Using collateral materials, as you can see

5 here we've thus far done about 65 million bill stuffers,

6 20 million brochures, over a quarter million safety

7 displays, et cetera, and built around a series of ten

8 do's and don'ts. We are trying to reach out to our

9 subscribers and say to them, "Safety is your most

10 important call at all times."

11 The most important outcome of this is, in

12 addition to the ten do's and don'ts, the basic level of

13 awareness that we all need to be working together to make

14 sure it is at the appropriate level. This information,

15 this awareness even extends to the phone itself.

16 CTIA runs a certification program where

17 phones that are sold in this country, if they want to get

18 the CTIA certification seal, must pass through specific

19 tests. One of those tests is they must be capable upon

20 turning on of this logo popping up and reminding

21 consumers every time they turn the phone on, "Safety is

22 your most important call."

1   That same certification program also

2   requires that there be a hands free port on every phone,

3   and that certification program also requires that in the

4   box of every phone sold in America there must be the

5   officially sanctioned list of do's and don'ts, the safety

6   brochure about what proper, safe use of the phone

7   constitutes.

8   And as I indicated before, carriers

9   distribute this same kind of information to their

10   subscribers both in corporate materials and even down to

11   their advertising in newspapers, where they may be

12   advertising the rate special, but if you'll look, you'll

13   also see the "safety, your most important call" logo.

14   We want it to become like the "buckle up for

15   safety" logo, to have it constantly in front of people

16   every day they open the paper, reminding them that when

17   they get behind the wheel of a car, safety is their most

18   important responsibility.

19   We're doing electronic media as well. In

20   conjunction with the National Safety Council, we have a

21   public service announcement that has been running on

22   television that's had 188 million viewer impressions,

1 similarly a PSA running on radio that's had 83 million

2 impressions, and beyond these public service

3 announcements, we're buying time in major markets across

4 the country to take the message to consumers where they

5 are, in the car, during drive time, saying to them,

6 "Remember safety is your most important call."

7 The first run of this, just completed, had

8 205 million listener impressions, and CTIA, as I said,

9 pays for this. The carriers also expand themselves.

10 Here's an example of some of the items in the carrier

11 safety pledge to expand the reach beyond the CTIA PSAs

12 and beyond the CTIA purchased time.

13 Now, let's briefly return to the benefits of

14 a wireless phone in the car. As I said previously,

15 118,000 times every single day someone uses their

16 wireless phone to call and be a good Samaritan either for

17 themselves or for someone else.

18 The impact of that is shown in this chart,

19 which I believe uses NHTSA data. The shaded area is the

20 increase in subscribers. The blue line that kind of

21 follows that is the increase in the number of emergency

22 calls from wireless phones, and the two declining lines

1 above that are the decline in the emergency response

2 time.

3 And there is a proportional relationship.

4 You have heard of the golden hour in these discussions.

5 I've learned a lot about the golden hour. The faster you

6 can get the information to the appropriate personnel,

7 medical personnel, the better the chances of that

8 particular victim.

9 This is the way a nurse educator expressed

10 it the other day in a statement that she made.

11 So if we have this kind of a situation, what

12 do we do to work together? We know that wireless phones

13 save lives, and we know that improperly used wireless

14 phones can be a distraction. Education has to be the

15 answer.

16 As I said, there are distraction laws

17 already on the book. It is time for us to go beyond

18 legislation to education, but so often legislation or

19 regulation is a quick fix that you say, "Okay. Now I've

20 done my thing."

21 What we have to do is to reach beyond that,

22 to have an outreach to consumers that is more effective

1 to go back to the point of that the California Highway

2 Patrol made about education being better than punitive

3 sanctions.

4 We have road range programs in place that

5 urge people to use their phone in their car to report it

6 in many instances. Is this an issue that is as important

7 as road rage? If so, then let's work together for a

8 similar kind of an education program.

9 To get a driver's license in this country,

10 you have to learn all kinds of arcane facts, like how

11 many feet from an alley you're allowed to park. Let's

12 also make sure that that education opportunity is an

13 opportunity to educate all of the drivers of the future

14 about their responsibilities. Let's work with Department

15 of Motor Vehicles. Let's work with state governments,

16 and let's make sure that that is an educational

17 opportunity.

18 NHTSA has been very successful in delivering

19 the message about another safety tool, child seats. My

20 12 year old son can't wait till October when he turns 13

21 because then he can sit in the front seat. That message

22 has gotten through to him and gotten through to his

1   parents to enforce it.

2   How do we use the same kind of message

3   delivery to say to people that when you get behind the

4   wheel of a car, your most important activity is to

5   operate that vehicle safely?

6   The wireless industry is today, as I said,

7   buying air time, engaging in PSA activities, doing bill

8   stuffers, purchasing advertising, and doing other kinds

9   of educational outreach. We hope that we can turn around

10   and work with the federal government, state government,

11   and local governments to take those efforts and expand

12   them and do even more, and that is why, again, I thank

13   you for the efforts that you all have been exercising to

14   put this review in place and for the opportunity to come

15   and present to you all today.

16   Thank you.

17   (Applause.)

18   DR. KANIANTHRA: Tom, you cited some

19   statistics on the use of the telephones. In what way can

20   you help us in gathering data on crash statistics while

21   using the phone?

22   MR. WHEELER: I believe it was the previous

1 speaker, Dr. Edwards, who was talking about a Canadian

2 study. I know that in that instance the Canadian

3 carriers have been providing individual data in some

4 cases, and we'd like to try to figure out how to move

5 down that road here as well.

6   One of the difficulties we have on this side

7 of the border, however, is that some folks consider that

8 an invasion of privacy, and we have different sets of

9 laws. The Canadian data, I think, will be very

10 informative in this regard.

11   However, to the extent that we are able to

12 make this kind of information available, it is entirely

13 logical and we should be doing it.

14   DR. KANIANTHRA: Also, you said about

15 education and campaigns and so on you have many different

16 members manufacturing and selling cell phones which are

17 not the same in terms of its features and so on.

18   MR. WHEELER: Right.

19   DR. KANIANTHRA: What steps are you taking

20 as an association to insure that, you know, all of these

21 designs are similar in terms of distraction potential or

22 the work loads and so on?

1   MR. WHEELER: I think that one of the

2   challenges is existing in an environment where design is

3   a competitive factor, and therefore, our friends at the

4   Justice Department look rather askance on us setting

5   standards for how something shall be designed.

6   However, we can use the voluntary

7   certification program, which CTIA has and which I've

8   talked about, to enforce various kinds of voluntary

9   programs, such as the design for a hands free port, such

10 as the design for that message to pop up every time you

11 turn the phone on, such as the requirement that safety

12 information be in every box of every phone.

13   DR.   KANIANTHRA: Would you favor

14 standardizing any kind of data bus in a vehicle where

15 each of this equipment has to have a standard way to plug

16 in?

17   MR. WHEELER: That is an exercise that

18 people have been working on for years, and I have come to

19 find is something we need to go to Camp David to deal

20 with that because it's kind of akin to the Middle East

21 situation where everybody has very strong opinions about

22 how they would like to have it done.

1   MS. McMURRAY: I have a couple of questions.

2   One of the challenges we face in NHTSA in our educational

3   campaigns is measuring the cause and effect of whether

4   that educational campaign changed behavior or whether, in

5   fact, it was a combination of other efforts, including

6   laws aggressively enforced.

7   Do you have any evidence in your studies

8   after posting these tips, these ten tips, that these, in

9   fact, did change behavior on the part of the motorists?

10   MR. WHEELER: Yes, yes.

11   MS. McMURRAY: What was that measure?

12   MR. WHEELER: And I'm going to have to

13   submit it for the record, but what I can tell you is that

14   the thing that was interesting to me, and I was just

15   reviewing it yesterday, I had it on the slide and decided

16   to take it out. I apologize.

17   What was interesting to me is that if you

18   break it into three categories, affecting, not affecting,

19   and kind of an ephemeral "I don't know" survey, that the

20   movement was greatest out of this "I don't know" into

21   "yes, it affected me." And that, I think, is one of the

22   key constituents we want to get at, the big unknown out

1 here, the people for whom it is not an issue on their

2 screen.

3   And I'll be happy to provide that to you.

4   MS. McMURRAY: And you also seemed to be

5 saying that legislation is not the answer. Education is,

6 but I notice also on your chips you don't suggest that

7 people not use the phone at all while the vehicle is in

8 motion. Is that something that the industry supports

9 adding that as the 11th tip in lieu of legislation?

10   MR. WHEELER: No, I think what I'm trying to

11 say is that I think that there are judgments that you

12 make. When is the first time to use a phone? Most calls

13 are about 90 to 120 seconds in duration. When is the

14 right time to make a call?

15   I said to somebody the other day that

16 calling and talking to your divorce lawyer late at night

17 on the twisty road when it's raining is not the right

18 time to make a call, but that's an entirely different

19 call from calling your wife to say that you're running

20 late and "I'll be right there," and so you need to make

21 those kinds of judgment decisions.

22   What we're trying to say is that you've got

1   a responsibility, Mr. and Mrs. Consumer, to make those

2   decisions, and we think we've got a responsibility to

3   keep saying to you, hey, particularly in this kind of a

4   new environment, to remind you of your responsibility.

5   MR. PANIATI: I guess as a follow-up to that

6   question, to what degree would you be supportive of

7   really coming out and saying these are the situations

8   where you should not use the phone, not all situations at

9   all times and not just totally up to your judgment as to

10   stress, but if from the research it says these are the

11   times when you really absolutely should not be using your

12   cell phone. Is that something you would be support --

13   MR. WHEELER: I think that's a logical

14   extension of the kind of things we've done now. Don't

15   look up telephone numbers while you're driving. This is

16   stupid. Okay?

17   Don't write down telephone numbers. Okay?

18   Don't write down directions.

19   Absolutely there are things that you don't

20   want to be doing, and then I think we have a

21   responsibility collectively, all to be out saying, and if

22   there are things that come out of the research that

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1   suggest and here are other things, I mean, let's do it.

2   MR. WOMACK: I have a related observation on

3   that. When I first saw your "safety is the most

4   important call" message, I thought until I read the fine

5   print that it was talking about safety as most of us, as

6   I understand it, who have cell phones think of. You can

7   make the 911 call. You can do those things that affect

8   other people's safety.

9   MR. WHEELER: Right.

10   MR. WOMACK: But it's not your own safe

11   behavior that's the focus, and I misread that, and that,

12   I think, relates to the previous two questions. Would

13   the industry be willing to focus on something that is

14   more focused on things you must not do or before you use

15   the cell phone in a vehicle, keep these things in mind,

16   separate from the other global safety issues?

17   MR. WHEELER: I understand. I understand

18   your point, and you know, that logo -- I mean, maybe we

19   need to change some of the type size on it because one of

20   the -- the line under "safety, your most important call"

21   is "the wireless industry reminds you to use your phone

22   safely while driving," and maybe we need to point that up

1   some more.

2   But, yes, I think we've got a

3   responsibility, and we would be happy to work with you in

4   that regard, to say here are the kind of things you need

5   to be thinking about.

6   MR. HARTMAN: Another follow-up, I think, to

7   Rose's question. I understand that we need to make

8   people responsible for their actions, and we need to

9   educate them so they can be responsible, but there are an

10   awful lot of irresponsible people out there. How do we

11   protect the other people from these irresponsible people?

12   MR. WHEELER: Yeah, and what you ought to do

13   there is enforce the distracted driving laws that are in

14   existence. Somebody asked me out here in an interview

15   before coming in, "What should I do if I come up next to

16   somebody in a car?" And I think we all have

17   responsibilities ourselves.

18   We turn to people in the auditorium at a

19   concert or whatever and we say, "Shhh. Turn off your

20   phone," or whatever the case may be. I think we've got

21   that same responsibility and right to do that on the

22   highway, you know, as well if somebody is using it

1   improperly.

2   And I also believe that this is, again,

3   something that there is the capability for distracted

4   driving citations in all 50 states.

5   Sir?

6   MR. KRATZKE: Do cell phone makers have any

7   responsibility besides educating people with regard to

8   the safe use of cell phones? Do they have any obligation

9   to see if there's a technical way to have a chip inside

10   that won't allow it to be used?

11   Is there any responsibility besides an

12   education campaign in your view?

13   MR. WHEELER: You know, I thought that that

14   was a really interesting point that was referenced

15   earlier, that there may be a chip in the car that would

16   disable. One of the other technologies that is being

17   worked on right now is a thing called bluetooth, which

18   will allow an interface, a digital interface, between the

19   device and another device such as a car that exists

20   wirelessly so that you could literally put the phone on

21   the seat of the car next to you, talk to your visor, and

22   it plays back through your radio or whatever the case may

1   be and nobody does anything.

2   And I'm sure that there can be in that kind

3   of a situation -- there are technological add-ons and

4   tweaks, if you will, to that.

5   MR. KRATZKE: Is the cell phone industry

6   participating actively in that effort?l

7   MR. WHEELER: We have been working with the

8   automobile manufacturers, but we do not at this point in

9   time have something specific like that. It is not to

10 rule out something like that if somebody wants to

11 propose. We would be happy to sit down and try and work

12 in that regard.

13   DR. KANIANTHRA: Thank you.

14   MR. WHEELER: Thank you very much.

15   (Applause.)

16   DR. KANIANTHRA: I want to offer the

17 audience the chance to ask questions of the speakers.

18 Just pass on the cards. I know the format is not

19 conducive to dialogue, but at the same time, there is an

20 opportunity here.

21   Speakers, please make yourselves available

22 if questions do show up.

1   The next speaker is Mr. David Aylward. He's

2   the Executive Director of ComCARE Alliance.

3   MR. AYLWARD: Thank you, Joe. Thank you for

4   having me.

5   I must say that the ComCARE Alliance, which

6   -- go to the next slide, if you would -- which represents

7   a wide array -- it's a nonprofit coalition representing

8   a wide array of EMS, 911, wireless, AAA, Heart

9   Association. We've come together to try to improve

10   safety using communications technologies.

11   We appreciate the opportunity to be here.

12   We particularly appreciate the support that this agency

13   has given to our efforts, whether it's NHTSA, FHWA, the

14   Joint Program or DOT overall. A lot of what ComCARE has

15   done and is doing is able to do because of the strong

16   support of DOT for safety in new technologies.

17   I think this hearing is very timely.

18   Three quick stories. One, all of us know

19   stories of people acting like idiots with cell phones.

20   Unfortunately we also know stories of people getting hurt

21   and killed by people acting like idiots with cell phones.

22   Also stories of people who are alive today

1   because they had cell phones in their cars. A woman in

2   Texas who was flipped upside down, driven off the road,

3   and was able to call for help. It took two hours to find

4   her, but she's alive today and her baby is alive today

5   because of a cell phone.

6   I have a 16 year old Texas step

7   granddaughter who's just starting to drive and just using

8   a cell phone and was just here last week. So these

9   issues are very person to me, both learning how to driver

10   right and learning how to use a cell phone.

11   So I think with 100 million Americans now

12   using cell phones, this is a national issue, and I

13   compliment you on having this today.

14   Let me go to the next slide, if you would.

15   There are a lot of unknowns, and Mark

16   Edwards -- I'm privileged the AAA is a board member of

17   the ComCARE Alliance. In fact, ComCARE got started at a

18   dinner where Mark Edwards was one of the leading

19   participants. A couple of trauma surgeons and emergency

20   docs were there and Tom Wheeler from the wireless

21   industry.

22   So one of the things we knew is what NHTSA

1   knows, and that is there's a lot of things we don't know,

2   but we do know a lot of people are dying, and if we get

3   to people fast and we get the right care to people, we

4   can save them. It's not just response time. It's the

5   right response, and wireless technologies and phones in

6   cars can save.

7   So a lot of what I'm going to talk about is

8   to remind all of you, not just the government people, but

9   the private people that what we know is that the presence

10   of these devices in cars and on the streets is a life

11   saving tool, and the trick here, as Mark Edwards so

12   eloquently put it, is to figure out how to use them

13   right, figure out how to use them safely.

14   So we'll go through these quickly because

15   Tom Wheeler stole my stuff. We know a lot of wireless is

16   going up, and this is going to continue, and I might add

17   that it has been driven by the growth of these, but the

18   auto industry is now coming back around and starting to

19   put these devices in its cars. So it's not just -- this

20   is mostly traditional wireless subscribers, but when you

21   hear General Motors announce that they're going to have

22   a million OnStar subscribers by the end of this year when

1   the auto companies are moving quickly, and then you hear

2   the other folks talking about wireless PDAs, personal

3   digital assistance, these devices are going to be

4   ubiquitous. People are going to be carrying them of

5   various kinds.

6   So when we talk about this issue of wireless

7   devices and distractions, let's be careful we're not

8   limiting the discussion to these things.

9   And, by the way, if your grandchildren come

10   to visit, make sure they bring you the Captain America

11   cap for your phone, the American flag, by the way.

12   Okay. Go ahead.

13   The number of emergency calls has gone up.

14   Go ahead to the next one, and the notification time has

15   decreased.   Now, that's not scientific.   It's

16   coincidental. We can't prove that.

17   Go to the next one.

18   But we do know that there are a lot -- if

19   you talk to anybody in public safety, and I see, I guess,

20   here looking down at who's testifying today, I'm

21   representing the folks who do responses, the 911 folks

22   and many of the public safety people and the EMS world,

1 and these phones are very valuable as communications

2 devices in reporting aggressive and drunk driving,

3 particularly where there's a partnership, where the local

4 law enforcement folks have come together and done an

5 educational campaign and launched a particular campaign

6 focused on this reporting emergencies of various kinds.

7 Mark mentioned the radio being a device for

8 hurricane warning. I spoke at a conference yesterday at

9 the Department of Commerce where they held a conference

10 sponsored by NOAA. It started out with all weather

11 warning system and they want to expand it to hazards.

12 And what do they want to do? They want a system so they

13 can call out to these phones and say, "The hurricane or

14 tornado is coming at you. Get out of the way or get

15 under cover."

16 So the story Mark told you about radios is

17 being applied by another federal agency in the instance

18 of weather issues.

19 Obviously reporting a lot of the work we've

20 done with Department of Transportation has not been 911

21 situations, but traffic people wanting to know about

22 incidents on the highway, that they have to move a car to

1   remove the possibility of another crash.

2   But as Mark says, the real issue here and,

3   I think, NHTSA's approach and DOT's approach, and it's

4   exactly the right way, is banning these technologies

5   makes no sense. The issue is taking advantage of the new

6   technologies in the safest way possible.

7   Clearly, they can be distracting, but

8   clearly we want them in cars.

9   And, again, let me stress if you go to some

10   of these conferences or conventions where people sell new

11   electronic stuff and you look at what we're talking about

12   here, the debate such as has been conducted to date over

13   cell phones, should we have an ear bud or not, I think,

14   is yesterday's issue, and I would commend that you look

15   at tomorrow's issue, which is that plenty of people are

16   talking about different kinds of information flowing into

17   the cars, and it's not just audio information. We're

18   talking about video information, mapping.

19   I saw a car with a video screen, reasonable

20   size video screen, that the driver could look at while he

21   was driving, and I don't speak for my organization

22   because we haven't taken a position on that issue, but as

1   a citizen that scared the hell out of me.

2   So the Heart Association is one of our most

3   effective and active members. You wonder why they're

4   involved in this debate. They're involved in this debate

5   because the last thing they want to do is see these

6   devices moved, and they would like to see more of them.

7   They're cheering on the auto industry as it puts in

8   mayday devices because they, as much as anyone, know that

9   time counts when you're having a heart problem. So

10   usually they give the ComCARE presentation, and this is

11   a slide that they throw in.

12   But right now one of the big problems with

13   time is this is what -- PSAPs, by the way, for those of

14   you who are not into acronyms from the safety world,

15   that's public safety answering point, and that's what

16   they see. They see nothing because they don't know where

17   you are. So they lose time.

18   Let's skip out two or three years. What

19   they could see is one use of this device which NHTSA is

20   funding, which is automatic crash notification. They

21   could see predicted information on how badly the person

22   is hurt.

1   This is from Veridian Corporation with a

2   NHTSA grant, an FHWA grant. Actual crash. The woman on

3   the right wasn't wearing her seatbelt, crushed vertebra

4   predicted by the data. The person on the left, not hurt,

5   wearing the seatbelt.

6   Go ahead.

7   In real time with these systems in the cars,

8   with these telematic systems in the cars, we're able to

9   send the information that would allow the emergency room

10   physician within two minutes of the crash to see a

11   recreation and an animation in the bottom left-hand

12   corner, plus the data that would predict how badly

13   somebody was hurt.

14   Now, why am I talking about this when we're

15   talking about distractions? Because we want industry to

16   put that in. We want to encourage them to put this kind

17   of technology in the cars. How do you get a telematic

18   platform in the car for safety reasons? Probably because

19   it's used for non-safety reasons.

20   I can make three 911 calls on this phone

21   because the industry is out building a network so I can

22   make non-wireless phone -- non-911 calls and pay for

1 them. That blend of public and private purpose is how

2 these safety technologies are coming about.

3   Go ahead.

4   Indeed, let's take it one step farther. The

5 automatic crash occurs. Through wireless you get the

6 data or you push the button saying, "I'm having a heart

7 attack." It links to a call center, a private call

8 center, not the public 911 system, which then calls the

9 public 911 system, an emergency, which with just a little

10 bit of work which is now being led, in fact, by DOT

11 launching a public safety program, bringing together

12 these public safety players.

13   You could share that data in real time with

14 the hospital, with the ambulance, and then the person in

15 the ambulance with a PDA, a wireless PDA, could plug into

16 the same data, again, a communication from vehicles, and

17 share that with the traffic department and with the

18 police department.

19   All of this is going on because of wireless,

20 and wireless devices in cars.

21   Go ahead.

22   That's ACN. That's down the road. What's

1 happening right now is mayday, simply notification of a

2 crash. Push a button. You get to the mayday system.

3 Air bag goes off; you get to the mayday system.

4 You heard from Motorola and GM this morning.

5 As I said, a million. OnStar alone is going to have a

6 million of these systems out by the end of the year.

7 And I might add, they're doing this without

8 regulation. My first exposure to auto safety was on the

9 Hill in the early '80s when I worked on the House staff,

10 and there there was a war between this department and the

11 automobile industry over air bags. Here we have a safety

12 feature that is going in at private expense, at private

13 instance, and I think we should encourage that.

14 It's very useful information today, and it's

15 going to get better as we go along. But there are some

16 challenges there. I mean, here we are talking about

17 location information, calls going into a private call

18 center representing an organization that has the 911

19 people as members and the OnStars and the Nissans and the

20 ATXes of this world as our members.

21 We heard about this last year from both

22 sides saying, "Hey, there are a lot of issues here. We

1   don't know what number to call. We're having a problem

2   integrating the public safety answering system with the

3   private sector." And there are just a series of issues

4   there, not the least of which is that there isn't a

5   protocol to send the information.

6   The reason I raise this is that the answer

7   to it -- next slide, please -- is we came up with a

8   public-private process which will be announced tomorrow

9   by Secretary Slater between DOT and ComCARE, supported

10   with a grant from General Motors, to bring these groups

11   together to figure out how to make this safety system

12   work better and how to integrate between public and

13   private.

14   And it's a process that has been going on

15   for a couple of months. It will be, as I said, formally

16   announced as I said tomorrow. But what it's done is we

17   are finding that we have public and private working,

18   doctors, 911 people, transportation people, auto

19   companies, call centers sitting around the table working

20   through the issues with a goal.

21   Next slide.

22   One, it's inclusive, but the goal is to

1 reach a nonregulatory consensus. There's another way to

2 do this. You could propose a regulation, and you could

3 have a regulation saying, you know, here's what we're

4 going to do on distraction.

5 The reason I raise all of this is because

6 you have a model here which may work better in this area.

7 It's what Mark Edwards was referring to about working

8 with industry.

9 The technology is moving so fast, and there

10 are so many different players involved with different

11 constraints. There's the auto companies, on the one

12 hand, wireless, on the other, that the kind of process

13 here where you can work together with people, and we're

14 finding a very positive response to working out the

15 concerns of the 911 folks and the EMS folks. So I

16 commend that model to you. It may be useful when it

17 comes time, as Mark said, to design the safest way to do

18 these devices.

19 My sense is that industry reacts much better

20 when you try to work with them. I in my personal life

21 tried it both ways, and this one seems to be a faster way

22 to get things done.

1   But I commend you, again, for holding this

2   hearing. I think it helps sensitize the industry to the

3   kinds of things they should be doing, and I appreciate

4   the opportunity.

5   Thank you.

6   (Applause.)

7   DR. KANIANTHRA: Steve.

8   MR. KRATZKE: Can I ask just so that I

9   understand? The mayday and the ACN benefits and all of

10   that, I certainly agree that's a desirable goal. What is

11   the connection of that to cell phone use while you're

12   driving? Because I thought that was the start of your

13   presentation, and then it moved towards the safety gains.

14   Is one a necessary prerequisite for the

15   other?

16   MR. AYLWARD: Yeah, I think so. I think

17   there are people who say to me, "This 911 use and

18   wireless is great. I just wish they'd go build the

19   towers everywhere," and you kind of explain the towers

20   get built because people are making calls, commercial

21   calls, and so where there isn't a commercial use, there

22   isn't the free, public safety, add-on benefit.

1   Most people, I think, believe that the

2   technologies are going into the cars. The telematic

3   systems are going into the cars, which we believe have

4   enormous safety benefits, particularly the more

5   sophisticated ones that will come next, because there's

6   a dual use, and the dual use is the commercial

7   communication.

8   So to ban -- if you ban talking while

9   driving just in general, I don't think we'll see the kind

10   of investment in the safety systems that we otherwise

11   would.

12   Plus, a lot of the talking while driving may

13   well be reporting these kinds of things, and, two, the

14   auto folks are solving in many ways the hands free issue.

15   Now, I agree with Mark Edwards. I don't

16   think hands free is the total answer. I think you have

17   to look at the cognitive issues that are being raised,

18   but I do know driving -- I was taught to drive with two

19   hands on the wheel, and I do know when I'm talking on my

20   cell phone without an ear bud, I'm driving with one hand.

21   So that problem is getting solved very

22   nicely, as well, through the telematics packages.

1   DR. KANIANTHRA: Thank you. Thank you,

2   David.

3   The next speaker is Arlan Stehney. He is

4   the Executive Director of IDB Forum.

5   MR. STEHNEY: Joe, thank you.

6   I just want to relate one real life example

7   of in-vehicle application of devices. It happened right

8   here in Washington January of 1999. I was here for the

9   Transportation Research Board meeting, and the limousine

10   pulls up under the portico of the Washington Hilton. The

11   door opens up. The driver gets out. Sitting on the

12   center seat of his limousine is a laptop computer.

13   Sitting on the dashboard is a GPS antenna, and sitting

14   right behind the laptop is a big -- I think it's made by

15   Kensington -- a big track ball.

16   So after he let the people out of the car,

17   I had to ask him, "Can you explain to me what you're

18   doing with a laptop in the front of your car?"

19   And he very proudly told me, "Well, I do

20   navigation on it. See, I get this navigation system for

21    $169, and it works really well." And he said, "I also

22   look for phone numbers in Microsoft Outlook."

1   I said, "How does that work for you?"

2   He said, "Well, I had a problem with that

3   little pointing stick, but since I got that track ball,"

4   he says, "I can use it all the time."

5   This is reality. So we're talking about

6   today in-vehicle devices. Cell phones has been a big

7   focus that we've heard of today, but what's happening is

8   people are going out to CompUSA, for example. They're

9   buying a navigation program, and they're using it on

10   their laptop because they say, "Well, I don't need to

11   spend $2,000 or $3,000 or even $500 on an integrated nav.

12   system because I know where I go to work every day. I

13   only need it when I occasionally leave town, when I go to

14   Detroit or when I go to Pittsburgh or when I go to San

15   Francisco. When I'm in totally foreign surroundings is

16   when I need this, and that's when I'm going to use it on

17   my laptop."

18   So it's kind of ironic, I think.

19   One of the things that we're working on --

20   next slide, please -- one of the things that we're

21   working on at the IDB Forum is fostering an integrated

22   environment for in-vehicle devices. Work started nearly

1 a decade ago through the Society of Automotive Engineers

2 and through Consumer Electronics Association.

3 Right now the forum is a global association

4 of 67 member companies working to make what we're calling

5 open architecture a reality. The boundaries that we're

6 trying to look at and really trying to bridge are

7 automotive, electronic, and consumer devices.

8 With partner organizations, and one of those

9 partner organizations that we're working with is the

10 Automotive Multimedia Interface Collaboration, which is

11 a collaboration of the 12 world auto makers; we're

12 working, not ourselves to do the specifications, but

13 through AMI-C to do those specifications, to implement

14 recommendations, and to introduce products into the

15 marketplace.

16 And lastly, we have development

17 relationships that we've established with other

18 organizations to insure that IDB has an open architecture

19 into a vehicle, will network with the latest and future

20 technologies.

21 Now just a quick look at the members. These

22 are the companies right now that are supporting an open

1 architecture interface. There's nothing unique about

2 IDB. IDB is a canned bus, as Dr. Kanianthra said earlier

3 this morning.   This is a canned bus that's been

4 implemented in automobiles for years.

5 The big problem has been getting industry to

6 do this collectively. It has been getting industry to

7 agree that an open architecture solution is necessary

8 both from the vehicle manufacturer side and from the

9 device manufacturer side.

10 We think we finally have the momentum to do

11 that.

12 Next slide, please.

13 I'm going to digress, and this is probably

14 something that hasn't been brought up at all today. One

15 of the problems that we're faced with in vehicles and

16 electronics is a great mismatch between the way consumer

17 electronics devices -- that's including cell phones,

18 PBAs, any of those devices, entertainment devices -- and

19 vehicles are designed.

20 As you see on the top, for a typical

21 vehicle, the development cycle is about three years.

22 That includes a lot of testing, some of that mandated by

1 the government, some of that mandated by the

2 manufacturers themselves, but a very well designed, very

3 well tested product, typical vehicle, whatever that

4 vehicle is on the street.

5 Life cycle for that vehicle, let's say it's

6 about six years. That may even be a little longer now.

7 For those components that go into that vehicle, let's say

8 it's a sensor or let's say it's a part of the braking

9 system. That development had to have happened before the

10 vehicle development so that it could get incorporated

11 into the platform.

12 So its life goes through the development

13 cycle, and it goes out past -- into the development, into

14 the life cycle, rather, of a vehicle.

15 Now, at the bottom you see the four small

16 bars. What those small bars are is a typical development

17 in life cycle of any communications or consumer

18 electronics device. The development in life cycle of

19 those, by the time the vehicle on the top gets out of the

20 development cycle, that three-year period, you're already

21 into the fourth consumer product.

22 So it's a challenge that manufacturers have

1   not been able -- it's very difficult. How does a

2   manufacturer of a vehicle incorporate the latest

3   technology when you can go to the typical cellular store

4   and buy the latest technology for $49? It's an amazing

5   problem.

6   Next slide, please.

7   To document this, 2000 electronics, the

8   things that we see today, will typically appear in a 2004

9   model year vehicle. Vehicle makers are going to have to

10   guess what devices are going to be hot in those vehicles

11   in four years.

12   We've seen a rapid obsolescence of

13   electronics products. Things have been turning over

14   very, very quickly, especially with wireless devices,

15   especially with computing devices, PBAs.

16   Retrofitting right now is very, very

17   difficult. It's not at all integrated. If you say, "I

18   want to add a new cell phone to my car, and I already

19   have an integrated one that I bought with the vehicle,"

20   it's practically impossible to do that in any integrated

21   fashion. You essentially have to cut wires, pull devices

22   out, and that's the best that we can do today.

1   Devices have appeared independent of each

2   other. There's been little or no thought given to the

3   driving system or the vehicle system as a whole, and many

4   devices never even show up as factor equipped, and

5   they're really only ending up as the after market.

6   People are purchasing those devices separately.

7   Next slide, please.

8   We're also faced with usage that's rising

9   both of those devices and of those vehicles. Vehicles

10   are being driven further and more frequently. We have

11   people doing longer commutes. We have people using their

12   vehicles more and more.

13   Dependence on communications and scheduling

14   devices, even things like Palm pilots is really

15   increasing dramatically.

16   Outside influences are also becoming

17   increasing dependent on those devices. Traffic, if you

18   live in Washington or if you live in the Bay area, has

19   increased dramatically in the last decade. If you can

20   get traffic information on whatever device and it's real

21   time, it's up to the minute, and it's on a device, you're

22   probably going to buy it just to save yourself valuable

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1   time in traffic or staying out of traffic.

2   More choices are being offered to consumers

3   not only by the electronics manufacturers themselves, but

4   by service providers. Benefits are becoming obvious to

5   users. Now they can finally stay in touch with their

6   homes, stay in touch with their business, stay in touch

7   with their lives.

8   There's a large consumer market, but let's

9   put it into perspective when we look at this consumer

10   market. Typically there are about 15 million passenger

11   vehicles sold per year in the United States. Again,

12   these are all average numbers I have up here. We'll use

13   right now the snapshot of 100 million wireless phones.

14   We have about 3.9 million hand held PCs

15   worldwide. That's of '98. So that's probably grown

16   significantly in the last two years, and they are

17   predicting that by 2004 we'll have 240 million wireless

18   data users.

19   So clearly, even if we sold every device in

20   North America with an integrated system, it's going to

21   take us a little bit of time to get that penetration out

22   there.

1   And the shorter product life cycle is

2   promoting even more rapid technology enhancement and

3   merging of technologies as we have communications and

4   entertainment devices even merging into one.

5   Please.

6   So what we're ending up with is an

7   instrument panel, is a vehicle that looks something like

8   this. I have to admit that this slide was originally

9   given to me by some of our members in Japan. So I had to

10   flip over the steering wheel, but this is the same

11   problem that's being faced in Japan and in Europe

12   certainly.

13   Next slide.

14   And that really isn't much better in the

15   typical police vehicle. There's been some discussion of

16   emergency vehicles today. This is a typical police

17   vehicle, and you could see the stack of cameras, video

18   cameras, radar devices, radios, and the multitude of

19   microphones, wiring, and that's a typical police vehicle

20   that we see today.

21   I'll show you a little later what we've

22   managed to do with IDB in one of those typical police

1 vehicles.

2 Next slide, please.

3 What we're really seeing is the vehicle

4 changing into a pathway for digital media, control an

5 communications. I don't think we're going to be able to

6 stop this change that's already happened.

7 What we're also seeing is a great growth in

8 not just in-vehicle systems that you see on the left,

9 things like entertainment, mayday, multi-function,

10 navigation, the PC platform. Those are out there. What

11 we're now seeing is a dramatic growth in dockable

12 products, things like hand held PCs and PCAs. Hand held

13 theater and games hopefully we're going to keep in the

14 back seat and that's not going to be an issue. I do have

15 that up there though.

16 Smart phones, navigation, hand held

17 navigation, even things like solid state audio are coming

18 into vehicles.

19 Next slide, please.

20 When we look at in-vehicle computing,

21 outside the vehicle the driver has really been the

22 technology of the computing. When you bring that device

1 into the vehicle, now the issue is really the vehicle

2 application. How do you port that into the vehicle?

3 Does it have an IDB port? Does it port only to your

4 vehicle?

5   And biggest of all or the largest issue and

6 the biggest number of issues that we have up there, the

7 human interface one, the safety, content, and display

8 quality.

9   Open architecture networking was started by

10 the industries a while ago, in the late '80s. Seed

11 funding was, in fact, provided by the U.S. DOT, by the

12 Federal Highway Administration ITS joint program office.

13 They saw this as a program that would foster the safe

14 introduction of telematics devices into vehicles, and the

15 industry has really rallied behind this.

16   It has helped to establish the IDB family

17 recommended practices that have already been improved by

18 industry through the SAE. It enables the safe and

19 intelligent introduction of telematics devices in

20 vehicles, and more than that, it also enables different

21 applications for front seat, for back seat, and for

22 driver.

1   And one of the things that we are doing is

2   working with the industry and looking to the industry for

3   more recommendations on how to best implement the open

4   architecture.

5   Next slide, please.

6   This is an overview of a typical open

7   architecture in a vehicle. As you can see, on the right-

8   hand side of the screen there are some devices, a phone,

9   an emergency call controller, a GPS receiver, and even a

10 couple of digital A/V devices.

11   Connected by either high speed or low speed

12 IDB interface, those go back to the vehicle. All the

13 control is on the vehicle side. Steering wheel buttons

14 so that the driver's hands don't have to leave the

15 steering wheel; in-dash displays so that the driver can

16 see certain information; back seat displays so that

17 certain other information is only ported to the back seat

18 passenger or even to a front seat passenger with no

19 access to the driver.

20   We even have things like a microphone built

21 in so that that microphone can be used in an integrated

22 fashion with these devices. Other things that tie in are

1 the other sensors and devices on the vehicle.

2 Next slide.

3 One of the things we've done is a number of

4 demonstration vehicles, and we'll be showing a number of

5 demonstration vehicles, in fact, 13 of them this fall at

6 the convergence conference.

7 These demonstration vehicles, if you look

8 especially after the number of hours that we've looked at

9 this today, if you look at that, you would probably grab

10 your head and say, "I can't believe that anybody in their

11 right mind would put that many devices in a vehicle."

12 What we've managed to do is on the right-

13 hand side of this screen, I'm going to run down very

14 quickly what those devices are: a safety warning system,

15 a pager, a navigation system, GPS, a Web server, RFID

16 phone module, an HP speech generator.

17 On the right-hand side we have -- excuse me

18 -- on the left-hand side, we have all of the devices that

19 were already in the vehicle, and this particular vehicle,

20 there's a couple of vehicles that were used, a Lincoln

21 Continental and a Lincoln LS. They both had the voice

22 control systems built into them, as well as a number of

1   other systems.

2   Let me give you the scenario of what

3   happens. Let's say you get a page today. Okay. You're

4   wearing a pager on your belt, and let's say you have a

5   cell phone and it's plugged into the cigarette lighter.

6   So the page comes in, you fumble around for where your

7   pager is.

8   If you're smart, you take it off your pager.

9   If you're not smart, you look down and try and find out

10   what the number is off your pager. Then you take that

11   number, and you find your cell phone that has probably

12   fallen off of the passenger seat on the floor. So you

13   pull it by the cord, and you take it and you try and

14   remember what that number was, and you put that into your

15   cell phone, and you dangle the cord, twist it around your

16   elbow, around the gear shift lever, and you try and make

17   the call.

18   In the demonstration, the page came into the

19   vehicle. The vehicle was equipped with what was a drone

20   pager essentially. So the pager was the same pager as

21   what you have on your belt. The pager in the car

22   received that number. It told you there was an incoming

1 page. It muted the audio system, number one, and told

2 you there was an incoming page, replayed it on the

3 instrument panel right under the speedometer/tachometer

4 in a very well designed display, loaded that phone number

5 into the cellular telephone, then asked, "Would you like

6 to call that person back?"

7   And with the voice control you could simply

8 say, "Yes," and it would call that person back. Totally

9 hands free at that point. When you're done with the

10 call, you just end the call.

11   So what we found is that you could take a

12 multitude of devices like this, and this is today's

13 technology. This isn't five years from now. This isn't

14 ten years from now. This isn't Buck Rogers. This is

15 today, and you could integrate this number of devices,

16 and you could have that scenario play out.

17   And, in fact, that scenario played out two

18 years ago at convergence. So this isn't something that

19 we're just even breaking. This is something that's been

20 happening out there.

21   Next slide, please.

22   Communication networks are going to continue

1   to expand. We're going to see more digital communication

2   networks as third generation cellular arrives.

3   Bluetooth we heard reference to a couple of

4   times. Bluetooth is simply a wireless version of this

5   networking. We're going to see the bluetooth networking

6   come in the vehicles as well so that you're going to

7   eliminate even putting devices into docks. You'll leave

8   your phone in your pocket or in your briefcase

9   potentially. Those will interface back to the IDB open

10   architecture in the vehicle.

11   The number of devices in vehicles is going

12   to grow as those technologies really become more viable.

13   Benefits are going to become certainly more obvious to

14   users. Prices are going to fall. Integration is going

15   to improve.

16   The thing that we're really looking at, and

17   we've heard this mentioned a couple of times today as

18   well, is the comparative risk of off-loading those tasks

19   from the driver. That's really what we're looking into

20   with an open architecture.

21   It's not the solution to every distraction

22   problem. We do think though that it will minimize hands

1 off wheel, eyes off road, minimize the number of steps

2 that are necessary to complete tasks.

3 One of the big things we think is the common

4 look and feel between vehicles. One of the things that

5 we heard is if you go into a rental car and you can't

6 find where certain switches are, where certain devices

7 are located, it will certainly address that.

8 We can limit demanding tasks under certain

9 circumstances. If you have a lane departure warning

10 system, for example, there's a company in Pittsburgh

11 called Assist Ware that makes a lane departure warning

12 system that works very well.

13 Tied into IDB, that system can actually shut

14 off your phone and tell you -- you know, you can have an

15 audible device come back to say, "You're leaving the

16 lane. I'm going to mute the phone until you get back

17 into the lane," very analogous to my wife sitting next to

18 me in the car saying, "You're hitting on the shoulder.

19 Hey, pay attention."

20 And, again, the technology is today. We

21 sometimes look at these things and say, "Well, maybe some

22 day we can do it." It can be done today, and likewise we

1 can also look for a -- I'm trying to read the slide here

2 -- a validation plan for each of those devices so that as

3 devices are introduced there is a plan for how that

4 device is going to integrated back into the vehicle.

5   And as I said, it is technically and

6 commercially feasible today.

7   Please, the next slide.

8   Things that we want to do are integrating

9 into the vehicle environment. We have dedicated displays

10 already in vehicles, and we're seeing more and more of

11 those displays introduced in vehicles.

12   Appropriate times of use so that a vehicle

13 can actually make decisions as to when you can access

14 certain information.

15   A number of value added services are coming

16 out, focusing on driver task improvement, and of course,

17 rear seat only applications where you have video and

18 other applications relegated only to the back seat.

19   Next slide, please.

20   I think one of the things that we have to

21 look at is would we would not have a number of integrated

22 phones if installation was not an issue, if a common

1   interface for all vehicles was made available, if costs

2   were minimized, practically a give-away even, and

3   benefits were made obvious to users.

4   I know I've had a number of vehicles that

5   have had car kits, and typically they're expensive, and

6   it's difficult to install them, and most people just

7   don't want to hassle with it when you can get a cigarette

8   lighter adapter.

9   Ironically one of the few times I was pulled

10   over by the Pennsylvania State Police is when I was going

11   to put my phone back into the wireless holder and plug

12   the connector into the bottom of the phone, and the

13   officer pulled me over, and he saw what I was doing, and

14   he asked that I do that on the side of the road before I

15   pulled back out. But it is reality though.

16   Making functions available only to drivers.

17   I mentioned a number of times the vehicle can decide

18   that, make that decision based on things like steering

19   wheel angle, braking information, transmission, and

20   engine information, traction control information so that

21   that vehicle can actually determine when you're in a

22   snowy condition, for example, that it won't let you use

1   the phone or the nav. system.

2   Again, vehicles have that knowledge and have

3   those capabilities today.

4   Next slide, please.

5   This is a vehicle, the police vehicle, that

6   I had showed you a little earlier. This is with an IDB

7   application. This is the alert police vehicle done by

8   Texas Transportation Institute, one of our member

9   organizations.

10   The touch screen in front of the driver not

11   only integrates that whole set of functions, but when he

12   hits a pursuit button, the buttons on that screen

13   themselves actually grow to be much larger, about three

14   or four times the size that they normally are to allow

15   the driver to focus on the driving tasks because

16   certainly as a police officer or fire truck driver, an

17   ambulance driver, there are critical needs for

18   information and for control applications, and I think

19   that's a very, very good application and instance of

20   that.

21   Next slide, please.

22   Finally, timing is going to be critical.

1 There has been a research phase that we've certainly

2 looked at, and there's a commercial phase that's out

3 there.

4 The problem is that center area is the green

5 area. That's really the opportunity window for

6 standardization. The problem is we've got a number of

7 products already out there in the commercial phase. We

8 have to go back and get that research phase completed and

9 worked together to get that opportunity window.

10 Next slide.

11 Finally, I'd like to wrap up. The IDB

12 Forum and its members certainly understand the

13 implications of driver distraction, and we'd like to work

14 with NHTSA. The companies who are members of the forum

15 have certainly done significant research into driver

16 distraction. We're certainly working with them to try

17 and organize those findings.

18 And the implication is really to create a

19 driver interface system instead of having a multitude of

20 unrelated devices in the vehicles.

21 Thank you.

22 (Applause.)

1   MR. KRATZKE: I have my same old concerns.

2 I noted in your slide that we should make features

3 available only when it's safe because someone looking at

4 that list would say, "Are you nut?" And I kind of agree

5 with that.

6   We just heard from a whole lot of presenters

7 that we don't actually know when it's safe. We haven't

8 done the research we need to do. It will be a while

9 before the research is available.

10   In the meantime, what happens? Who's doing

11 what?

12   I would assume IDP's primary responsibility

13 is to make sure it works. When it goes in the vehicle,

14 it works, and that's good. Someone ought to be doing

15 that.

16   Do you have any responsibilities for safety

17 when you're doing this? Is that up to the vehicle

18 manufacturers as they incorporate it into the design? Is

19 it up to the suppliers as they bring the parts?

20   MR. STEHNEY: Let me address that in a

21 couple of ways. I think that, number one, the problem is

22 I think a lot of people are concerned about the problem.

1 I think the problem is taking a back seat sometimes to

2 getting the product out there.

3 I think the concern has been how do I

4 integrate this with other things, but I really don't know

5 how to do that. So I'm just going to go ahead and sell

6 the product because it's a good product. It's a viable

7 product.

8 If people use their own common sense,

9 they'll know when they shouldn't use the product. The

10 problem is that oftentimes that's not true, but the

11 mechanism to say, "Well, I've got a good product here,"

12 whether it's a cell phone, whether it's an entertainment

13 system, whatever that is, "and I've got a vehicle that I

14 can actually get data from, and I can make determinations

15 with the vehicle."

16 So if the vehicle is going over 65 miles an

17 hour, I mute everything or if the vehicle is turning I

18 mute everything. Up till now, manufacturers really

19 couldn't do that. So I don't want to say it's an excuse

20 that has been an easy one, but it really hasn't been

21 feasible.

22 So instead of stopping technology to say,

1   "Well, we're not going to have cell phones or PDAs or any

2   of these other kinds of things," people have relied upon

3   drivers to make those decisions. And ultimately, it may

4   still always be a question of when a driver -- a driver

5   -- there may be a safety load that's been determined by

6   the car makers, by the consumer electronics

7   manufacturers, but for certain drivers, they still may be

8   overwhelmed by that amount of information at that time.

9   So the driver probably -- and, again, many

10   of these are just my opinions -- the driver would still

11   have to be responsible for what they determine as a safe

12   level of application in their particular vehicle for

13   them.

14   DR. KANIANTHRA: If I understand the

15   function of your organization, it's more to standardize

16   for the convenience of your members certain protocols in

17   putting equipments, and I don't think you said design

18   guidelines for safety is one of the goals you have. Is

19   that true?

20   MR. STEHNEY: That's correct. One of the

21   things that we're doing, in fact, the mission of our

22   organization is very single minded. It's to propagate

1   the technology through the industry to consumers, both

2   domestically in Japan and in Europe.

3   We've been working with Society of

4   Automotive Engineers. The actual specification is an SAE

5   specification for the initial version of IDB. There will

6   be additional higher speed versions of IDB that we're

7   also working with other organizations on.

8   So on that side of it, the technology is

9   actually industry standards. On the other side of it,

10   we're also looking at the SAE Human Factors Committee.

11   We're looking to NHTSA for guidelines. We're looking for

12   a number of organizations to provide those guidelines to

13   us.

14   Our organization's mission is to assure that

15   open architecture technology is introduced. Without open

16   architecture technologies, a lot of the things that we

17   talked about, in fact, most of the things that we talked

18   about today won't be possible. So we think of it as a

19   cornerstone to adding safety to the vehicle, to adding

20   devices to the vehicle, and to doing it effectively.

21   The mission is certainly too wide for us to

22   start looking at safety issues, the technology issues,

1   the introduction of the technology itself. I mean it's

2   a large task.

3   DR. KANIANTHRA: Would you then support with

4   open architecture t[his]* lends itself to common test

5   procedures for evaluation of safety performance and so

6   on? Would you favor that?

7   MR. STEHNEY: We sure would, and that's one

8   of the things that we would certainly like to work with

9   NHTSA to develop that, to assure that that is part of

10   those IDB devices so that when an IDB device is certified

11   as IDB compliant, it's not just that it plugs in. It's

12   not just that it works electrically or physically, but

13   that it also works functionally so that it performs the

14   way that we expect it to.

15   DR. KANIANTHRA: Thank you.

16   MS. McMURRAY: It sounds like what you're

17   saying is that you're devoted to sort of the technical

18   feasibility of how all of these potential consumer items

19   could be integrated and made standard, but that the

20   obligation for determining the safety implications of

21   that integration and the numbers of things that are

22   integrated belong to someone else.

1   MR. STEHNEY: They belong -- there is no

2   formal -- we have no formal understanding that says that

3   we will use only one particular organization or that

4   we're looking at any one particular organization.

5   Number one is that we have those 67 member

6   companies. So our assumption is that those companies are

7   going to implement IDB on their devices in their

8   vehicles, in their products within a given set of

9   guidelines, whether that be internal guidelines, for

10   example, from the car companies which are quite

11   extensive; whether they're SAE guidelines that we're

12   working together with; whether it's federally mandated

13   guideline, whatever those guidelines might be.

14   Right now there are no guidelines really.

15   I mean the only guidelines that are out there are the

16   ones that are -- I shouldn't say that there are no

17   guidelines, but there are no guidelines for open

18   architecture networking in terms of that implementation.

19   We are looking at, for example, the 15 second rule and

20   the work of the Human Factors Committee within the SAE.

21   MS. McMURRAY: I want to follow up with

22   something that Mr. Kratzke said about making functions

1 available only when the vehicle is safe, and you

2 described some of the interventions that the vehicle

3 would override some of these features if it appeared that

4 the vehicle was either departing a lane.

5 What do you have in mind for avoiding rear

6 end collisions? And, you know, if someone is distracted,

7 are you talking about disabling the engine, reducing the

8 speed of the car? I mean, what is the intervention you

9 have foreseen there?

10 MR. STEHNEY: Okay. There's a couple of

11 answers to that. The obvious answer would be that IDB

12 really is working on really controls of devices that are

13 in cabin. So it's really the devices that you add, the

14 communications, the entertainment, those kinds of

15 devices.

16 In terms of the vehicle itself, we would

17 rely upon, for example, an intelligent cruise control

18 system, and that would be inherent to the vehicle itself.

19 IDB doesn't work with safety related devices. So we're

20 not perpetuating that safety related devices should be a

21 part of IDB.

22 IDB will use the safety related devices that

1 are inherent in a vehicle already and will make its

2 determinations of when it's safe based on those devices.

3 So, for example, you're not going to trigger air bags

4 using IDB. IDB will make decisions based on the air bags

5 triggering off of a safety related network that's already

6 in the vehicle.

7 MS. McMURRAY: Okay.

8 MR. STEHNEY: Okay?

9 DR. KANIANTHRA: Thank you.

10 MR. STEHNEY: Okay. Thank you.

11 (Applause.)

12 DR. KANIANTHRA: The next speaker is Kathryn

13 Lusby-Treber. She's the Executive Director of Network of

14 Employers for Traffic Safety.

15 MS. LUSBY-TREBER: Good afternoon. I'd like

16 to commend the National Highway Traffic Safety

17 Administration for convening a hearing to discuss driver

18 distractions.

19 Our research and that of others demonstrates

20 the loss of life and productivity due to traffic crashes

21 is an enormous cost to the nation, as well as to its

22 employers. Many of these crashes are predictable and,

1   therefore, preventable.

2   The Network of Employers for Traffic Safety,

3   NETS, believes that the best way to prevent crashes is

4   through continuous education and incentives. The idea is

5   to make people aware of the driving behaviors that may

6   increase their risk of crashes and provide them with

7   self-corrective measures.

8   NETS is a public-private partnership that

9   focuses its efforts exclusively on introducing traffic

10   safety to work place safety management systems. The NETS

11   partnership includes federal agencies concerned with

12   highway safety, including NHTSA, FHWA, NIOSH, and some of

13   America's leading companies with a demonstrated

14   commitment to educate their employees about the need to

15   drive safely and responsibly.

16   Our mission is to reduce crashes involving

17   America's workers and their families by helping employers

18   implement traffic safety policies and education, training

19   and awareness programs. These programs are designed to

20   reach all employees and their families, not just fleet

21   drivers.

22   We also encourage employers to become

1 involved and take a leadership role in community traffic

2 safety activities. NETS is the only national nonprofit

3 organization with this exclusive focus.

4 Please understand what NETS is not. We're

5 not a policy oriented organization. Many of our members

6 do seek to influence policy at the national, state, and

7 local level, but as an organization, the decision has

8 been reached to focus our energies and our expertise on

9 traffic safety education, awareness, and prevention

10 measures.

11 The importance of traffic safety simply

12 cannot be overestimated, and the consequences for not

13 addressing this issue are devastating. Identifying the

14 factors that contribute to traffic crashes and finding

15 ways to reduce the toll such crashes take is critically

16 important.

17 One of the largest contributing factors is

18 driver inattention. Driver inattention has been

19 identified as a contributory factor in more than 25

20 percent of all motor vehicle crashes. Commuting

21 distances have gotten longer as people move further out

22 from city centers, and commuting times have likewise

1   increased as more and more people take to the road to get

2   to and from work.

3   In today's fast paced society, drivers are

4   multi-tasking while they drive to save time, to increase

5   productivity, or simply to stay in touch. Multi-tasking,

6   however, can take attention away from the primary

7   responsibility of every driver, which is to drive safely

8   and responsibly.

9   Driving distractions make up a large part of

10   the inattention problem, and these include environmental

11   factors, in-vehicle factors, and cognitive factors. I

12   realize that the focus of today's hearing is on in-

13   vehicle electronics, but it's also important to remember

14   that they represent only a portion of the potential

15   distractions that contribute to crashes.

16   Current research does not tell us how many

17   distractions are too many. In addition, we still do not

18   know what relative impact different distractions have on

19   driver attention, either singly or in combination.

20   Moreover, this is likely to vary from person

21   to person just as driving ability varies. Some people

22   are simply more capable of managing several activities at

1   once.

2   What is clear, however, is that driver

3   inattention is due to many factors, each of which needs

4   to be identified and quantified as part of future

5   distracted driving research.

6   In the meantime, there is information

7   available that helps us to understand and identify

8   potential distractions and develop strategies to manage

9   them effectively. We've learned from the trucking

10   industry that specialized and continuous driver training

11   helps to make driving tasks second nature so that drivers

12   are less at risk from distractions that could affect

13   their driving performance.

14   It's this type of training and education

15   that is at the heart of the NETS approach. The use of

16   training and education programs to improve driver

17   behavior has been demonstrated effectively many times.

18   NETS has implemented work place traffic training and

19   education programs in many work sites, and they have

20   successfully achieved the desired results.

21   We consistently find that if the educational

22   approach is coupled with incentives for safe driving, the

1 positive influence on behavior is even more effective.

2 Our experience indicates that a

3 comprehensive education program that addresses the whole

4 range of distracted driving behaviors holds potential for

5 reducing crashes. We have come to this conclusion after

6 reviewing studies, consulting with experts, and working

7 to develop and implement programs that address a number

8 of safety related issues.

9 Our message is simple. Education and

10 incentives work.

11 NETS has developed a number of programs to

12 reduce the incidence and severity of crashes. Our latest

13 initiative is on the subject of driver distraction. It's

14 an education program to promote responsible driving

15 practices.

16 The program helps drivers to better

17 understand and identify potential distractors and learn

18 to manage them effectively. The program portrays a

19 series of vignettes showing drivers engaged in activities

20 while driving that have been identified in at least three

21 national surveys as potential distractors: talking to

22 passengers, eating, drinking beverages, being involved in

1 personal grooming tasks, fiddling with the climate or

2 audio controls, using electronic devices, et cetera.

3 The program then provides safety tips and

4 common sense strategies for managing these distractions.

5 The program is video based, and it really sends three

6 essential messages.

7 One, learn to recognize the signs or clues

8 that you are distracted.

9 Know when you're not paying close enough

10 attention to the driver task. These common occurrences

11 can be avoided by making drivers more alert to these

12 conditions so that they can take appropriate preventive

13 action and avoid a crash.

14 We learn from human factors and driver

15 behavior experts that these clues include not recalling

16 or noticing details in the traffic stream, passenger

17 behavior reacting to a driver's error, not remembering

18 going from Point A to Point B, being surprised, being

19 caught off guard, having to suddenly swerve to avoid

20 hitting something, driving to and from lanes or going off

21 road, unintentional tailgating or driving too close to

22 other vehicles or objects, and near misses.

1   The second message is examine your own

2   routine habits when you drive and identify sources of

3   your distraction. Drivers need to be able to assess

4   their own capabilities so that they know when the

5   distraction level becomes unmanageable.

6   Much attention is currently focused on in-

7   vehicle electronics, and indeed, it probably should be.

8   We hope that training programs showing drivers how to

9   safely manage these devices while driving will accompany

10 each of them.

11   And our third message, learn to better

12 manage those distractions. Our education and training

13 program focuses on common sense countermeasures that are

14 designed to mediate the potential effect of distractions

15 on driver performance. The NETS program teaches drivers

16 about effective solutions, showing potential distractions

17 and then successful ways to manage them.

18   For example, if you're routinely eating

19 breakfast for your morning commute, stop hitting that

20 snooze button and get up just a little bit earlier. If

21 you're often jumping into unfamiliar rental cars in an

22 unfamiliar city, take just a few minutes to do that pre-

1 trip vehicle inspection and look at a map so that you

2 know where you're going before you get behind the wheel.

3 NETS staged a media event two weeks ago to

4 call attention to this serious issue of driver

5 distraction as we rolled out our distracted driver

6 campaign, "Who's Driving," and we were overwhelmed at the

7 media and public response. We've got the public's

8 attention, and they're interested and concerned about the

9 issue. This really is the teachable moment.

10 The NETS training program will be

11 distributed through the work place and to the general

12 public. We were supported in this effort by resources,

13 research, experience, and information provided by

14 Motorola, AT&T Wireless Services, AAA, UPS, General

15 Motors, Liberty Mutual, Nationwide, and others.

16 There's really a compelling need to gather

17 more and better data and to develop and implement a

18 comprehensive research program into the cause and effects

19 of distracted driving. In addition, we need to examine

20 the potential of educational initiatives targeted to

21 specific groups, new drivers, company employees, older

22 drivers, and the general populous.

1   While we believe it's possible to identify

2   generic driver management strategies that can apply to

3   all drivers, it's also clear that different groups of

4   people may be susceptible to different sets of

5   distractions or combinations of distractions.

6   Drivers will always face distractions.

7   There's no way to eliminate them. What we can do,

8   however, is teach people how to manage those distractions

9   and thus reduce traffic crashes and improve safety.

10   I really appreciate the opportunity to

11 provide this information today, and if I can answer any

12 questions, I'd be pleased to provide additional comments.

13   (Applause.)

14   DR. KANIANTHRA: Thank you.

15   The last speaker is Dr. Gerald Donaldson.

16 He's the Senior Research Director at Advocates for

17 Highway Safety.

18   Gerry.

19   DR. DONALDSON: I'm sorry for the long trip

20 from the back of the room, but I stayed where I was when

21 we started this packed meeting.

22   About four or five witness lists in a row

1   now, stretching back to about March of 1999, Mark Edwards

2   has always preceded me. This has been absolutely

3   consistent, and since I work in Washington entirely, I'm

4   very susceptible of conspiracy theories, and I'm starting

5   to think the fix is in.

6   One of the things I want to talk about today

7   is something that I don't think really has been dealt

8   with in this meeting at all. Mark Edwards did allude to

9   this, and as usual when Mark talks, I either learn

10 something new or it triggers a new insight. It has to do

11 with how we have parallel with the issue of how to

12 control in-vehicle driver distractions, the need to be

13 able to optimize how drivers deal with the task of

14 dealing with the highway environment, and I don't think

15 enough attention has been paid to that today.

16   And one of the things I want to talk about

17 today, in particular is a specific goal that I think as

18 a nation we need to reach, and that's greatly enhanced

19 intersection safety.

20   First, a working premise. Driver multi-

21 tasking and diverted attention, vision, hearing, and

22 cognitive processing, will increase. It's impossible to

1 return to a mythical baseline driver who solely attends

2 to the driving task and nothing else. So to me the

3 question is: how do we formulate a rational protocol for

4 multi-tasking by drivers which overall improves traffic

5 safety?

6 Unfortunately, the concentration of effort

7 by some members of the manufacturing community, both

8 original equipment and after market, has been

9 preponderantly in the areas of entertainment, convenience

10 and information systems, which are not explicitly

11 directed towards enhancing traffic safety, but instead

12 sometimes to grade it.

13 But I want to make clear here that we do not

14 regard these uncoordinated efforts at enhancing vehicle

15 marketability as threats, but they are competitors.

16 They're competitors with, I think, what will develop as

17 sophisticated technologies which are focused explicitly

18 on safety benefits.

19 So the crucial problem both for public

20 policy makers and for manufacturers to address is how to

21 integrated balance and limit in-vehicle and driving

22 environment distractions while also elevating the

1   benefits associated with direct safety related

2   technologies.

3   Let me diver into a sidebar here. One of

4   the things that hasn't been dealt with here today at all,

5   and I think it's basically the character of the turf that

6   we're on, is the distractions that are inherent to the

7   driving task in dealing with the outside highway

8   environment.

9   If you think back to Mark's slide that he

10   had up there about the things that drivers were listing

11   and in order of priority about distractions, those

12   distractions are almost always, in fact, I think

13   exclusively in-vehicle distractions. One of the things

14   as a nation that we have gotten used to now is accepting

15   as a given the incredibly sophisticated moment-to-moment

16   task of performing adequately in the highway environment.

17   The distractions are out there. Traffic

18   engineers have dealt with them for decades, not

19   necessarily all to the good. I've been involved with

20   traffic engineering and highway design now for 25 years,

21   and I can tell you that many of the principals an rules

22   of thumb that we use both for geometric design for the

1   cross-section and alignment of highways, as well as the

2   engineering criteria we use in traffic engineering in

3   order to make sure we supposedly don't engage in

4   information overload and diverted attention of the driver

5   are very rough and ready guidelines, and sometimes we

6   don't do a good job out there.

7   But the thing you have to remember is that

8   when you leave the narrow ribbon of dirt, which is simply

9   tracking across the natural topography of the peach

10   orchard, and you get onto a hard surface road, and from

11   there until the time when you get to I-95 or to the

12   Beltway, there is a dramatic increase in the complexity

13   of the driving tax, and a dramatic increase in the

14   demands for both cognitive processing, the filtering of

15   what are extraneous informational cues in a highway

16   environment that the driver has to disregard, which we

17   take for granted nowadays. We're habituated to this.

18   This is why one of the things that I'm

19   interested in is how we're going to engage in an

20   integrated balancing act, an integrated balancing act

21   that will by necessity have to recognize the driver

22   multi-tasking must be titrated, titrated to produce

1   overall increases in traffic safety benefits.

2   In many cases, this will explicitly have to

3   acknowledge that certain combinations of multi-tasking

4   that generate certain kinds of distractions are

5   outweighed by enhanced safety on the road.

6   And let me be blunt about that. What I ma

7   saying is that there is no notion here of trying to find

8   out what the optimally undistracted driver is in a

9   vacuum. There are going to be lower bounds for driver

10   ability which involves slow cognitive processing,

11   intermittent attention taken away from the road, visual

12   glance to other types of in-vehicle information systems

13   and all the rest, which if they were considered in a

14   vacuum would be intolerable, but those always are going

15   to have to be meaningfully indexed against actual

16   acceptable performance decrements in the driver's ability

17   to be able to negotiate a safe path down the road against

18   explicit safety enhancing technologies.

19   And let me give you an example of what I'm

20   talking about. In 1998, half of all injury crashes were

21   intersection related, and given the very small percentage

22   of surface mileage that intersections represent in the

1 3.94 million miles of roads and streets in the United

2 States, it is apparent that in the inherent design and

3 operational function of intersections present very high

4 opportunities for vehicle conflicts leading to crashes.

5 For example, and we had a member of the

6 panel here mention this just a little while ago, 75

7 percent of all rear end crashes involve a trailing

8 vehicle striking a lead vehicle which either is stopping

9 or has already come to a stop, and more than 50 percent

10 of this specific kind of rear end crash occurs at or near

11 intersections.

12 Intersections also produce conflicts leading

13 to the most serious type of crash in which vehicles in

14 crossing paths are laterally struck. Side impact crashes

15 suffered by occupants of the target vehicle are

16 associated with far higher levels of death and serious

17 injury because there is far less intervening vehicle

18 structure to manage impact forces and to prevent

19 localized intrusion resulting in massive concentrated

20 trauma to a vehicle occupant.

21 And then we have the usual dismaying

22 statistics which I'm not going to read in detail about in

1 1998 alone the number of enormously over represented

2 crashes involving some type of conflicts which resulted

3 in a collision at or near an intersection.

4 The last sentence here I have is that, for

5 example, in 1998 more than 10,500 fatal crashes occurred

6 in or near some type of intersection in more than one in

7 every four failed crashes. So addressing intersection

8 related crash losses in a comprehensive and focused way

9 is a highly complex task because intersections range in

10 type all the way from complicated express interchanges,

11 which attempt to control vehicles' entry and departure

12 movements through the use of various geometric design and

13 traffic engineering strategies, down to simple, rural

14 right angle intersections often controlled only by stop

15 or yield signs or in many cases by no traffic control

16 devices of any kind.

17 And some of you here in the room are

18 certainly familiar with the traditional strategies which

19 we've used to try to deal with intersection collision,

20 changing the geometric design of both the intersection

21 and the approach roadways, trying to increase the

22 sophistication or the timing involved with various kinds

1 of traffic engineering features in the intersection,

2 trying to control human factors issues, compliance with

3 traffic control devices, obedience to the rules of the

4 road, and of course, trying to always in the end enhance

5 compliance by strategically chosen enforcement practices.

6 But the problem is, of course, that none of

7 these can optimize safety, and the reason why they can't

8 is because these combined actions of improved

9 intersection design and traffic engineering, public

10 information campaigns, and automated intersection

11 violation detection technologies are reliable methods

12 which unfortunately are inherently limited. It's

13 doubtful that all of these strategies taken together can

14 ever secure radical reductions in intersection violations

15 and crashes.

16 An examination of national crash data files

17 shows that intersection crash losses have maintained a

18 fairly consistent proportional representation for total

19 collisions, injuries, and deaths for over a quarter of a

20 century. And although intersection crash losses have

21 followed a general downward trend of fail in injury rates

22 per unit of exposure over the past 25 years and more,

1   there are no statistical indications that substantial

2   reductions can be affected in the near future unless new

3   strategies are applied as countermeasures.

4   Now, I think that those new strategies are

5   the ones that are going to involve the general area of

6   investigation and technological innovation which are

7   currently termed intelligent transportation systems and

8   in the older parlance was called IVHS, intelligent

9   vehicle on highway systems.

10   These new technologies build upon the

11   reliable platform of traditional strategies and

12   countermeasures by offering both human factor and vehicle

13   solutions to intersection safety problems which cannot be

14   addressed, only through physical design changes, traffic

15   engineering improvements, educational efforts, and more

16   intense enforcement.

17   And then it gives you an example of what I'm

18   talking about here. Headway detection systems which

19   operate through the use of automotive braking or

20   deceleration; anticipatory warning systems which provide

21   drivers visual or audible notification that there is an

22   intersection ahead or an intersection conflict ahead;

1   situation displays which provide schematic visualization

2   about coming intersection conflicts; vigilance monitors

3   which provide alerting functions for drivers who are

4   drowsy and inattentive, a problem which is now recognized

5   as a major source of crashes among both passenger vehicle

6   and commercial drivers; and lastly, vision enhancement

7   systems. These provide increased sight distance for

8   nighttime driving. Many intersections which can be

9   easily seen under daytime illumination are not seen early

10   enough at night because of the restricted visual distance

11   provided by head lamp only illumination.

12   There are a number of alternative approaches

13   to providing generally improved nighttime driving sight

14   distance, such as vehicle mounted infrared cameras,

15   transmitting heads up displays of the road beyond the

16   cutoff point of head lamp illumination.

17   I think the important point here is that all

18   of these technologies, as I indicated a few minutes ago,

19   are in a sense competing with the kinds of technologies

20   which have preponderantly come on board in the last few

21   years which are oriented strongly towards in-vehicle

22   information, entertainment, and convenience systems.

1   So to me the public policy domain is

2   extremely complicated because the rapid growth in

3   utilization of inherently distracting technologies will

4   outpace regulation and law many times over. A

5   particularly difficult area will be even with a

6   appropriate original equipment manufacturer coordination,

7   the kind of rational protocol I mentioned before about

8   trying to titrate the level of in-vehicle distraction for

9   the driver, how do you control the piecemeal after-market

10   technologies which compound distraction and its negative

11   safety outcomes?

12   I was driving down the Beltway the other

13   day, and we're all seen the cell phone users. Now I saw

14   the lady with the personal digital assistant and one hand

15   scrolling through what apparently was either appointments

16   that morning or names and addresses. How is it possible

17   to control that kind of behavior?

18   I only know that it's a PDA. I didn't avert

19   my glance from the driving task long enough to find out

20   whether it was a Pilot Model 3, 5 or 7, but it certainly

21   was a PDA, and I've seen the pocket E-mail machines in

22   one hand, too, while driving down the road as well.

1   I think it's very clear that the kinds of

2   indications that were made earlier today by manufacturers

3   about trying to get some type of voluntary response to

4   integrate and coordinate with any potential public policy

5   issues is going to be the kind of response that we need

6   in the near term. I don't think, given the history of

7   both federal and state response in both law and

8   regulation, that public policy is going to grow anywhere

9   but at an extremely slow rate, and the development and

10   use of in-vehicle technologies are going to far outpace

11   any type of agency response.

12   Just remember there are two forces in the

13   universe that abhor a vacuum. One of them is nature, and

14   the other is the marketing division of a corporation.

15   So it's incumbent upon all of us to try and

16   work cooperatively and to try to advance an agenda which

17   is going to be able to deal with these kinds of

18   affirmative innovative safety technologies which can

19   actually reduce collisions, actually save lives and

20   prevent injuries, while at the same time we're trying to

21   deal with the coordination of control of in-vehicle

22   distractions, which right now are preponderantly oriented

1   towards, as I say, convenience, entertainment, and

2   informational systems.

3   Thanks.

4   DR. KANIANTHRA: Thank you.

5   (Applause.)

6   DR. KANIANTHRA: Just one observation,

7   Gerry. We have a meeting tomorrow afternoon and day

8   after called the National I[V]I*. We have a lot of

9   research work going on [i]n* some of the areas you have

10   touched on, and probably it will be informative for you

11   to attend that meeting, too, to find out what kind of

12   activities are going on within the department.

13   DR. DONALDSON: I'd love to Joe. This would

14   mean the entire week with nothing but meetings, Monday

15   through Friday. I've got to go back to the office

16   sometimes.

17   Thank you.

18   DR. KANIANTHRA: Thank you.

19   I want to offer an opportunity for anyone

20   from the audience who has the urge to speak. We must do

21   that as a public meeting. So I want to call on anyone

22   who would like to speak now.

1   Yes, Hugo. Come on.

2   Mr. Hugo Mellander. Do you want to say your

3   affiliation, please, Hugo?

4   MR. MELLANDER: Yes. Hugo Mellander. I'm

5   a consultant, traffic safety research and engineering in

6   Sweden.

7   I just have a question and a comment. I

8   assume that defense industry, aircraft industry has done

9   a lot of research into what a pilot can do when he's

10   flying an airplane, when he's landing the airplane and so

11   on. There must be a lot of studies, how many tasks he

12   can perform.

13   And I think there is some sort of selection

14   criteria. You subject persons to different tasks and see

15   how many things they can handle and there is a scatter,

16   I understand. The individuals, we all have different

17   capabilities to handle situations like that.

18   So I was curious what have we learned from

19   this and what can we use when we are coming into this new

20   area of technology, of ITS technology in cars, and I

21   guess my question is to the panel.

22   DR. KANIANTHRA: I think certainly some of

1   that research are transferrable. We have to really do a

2   literature search. We haven't really done too much

3   looking into that area, and this is really the first step

4   we are taking to develop a research plan within the next

5   few months.

6   So this public meeting is the first even

7   towards that. So hopefully we will look at all of the

8   research findings from anywhere.

9   Michael?

10   MR. PEREL: And could I add to that even

11   though I'm not officially on the panel?

12   DR. KANIANTHRA: Sure.

13   MR. PEREL: Some years ago we did a report

14   that tried to look at all of the data on driver-vehicle

15   interaction with collision, related to collision

16   avoidance systems, and to see if we can come up with some

17   preliminary guidelines, preliminary human factors

18   guidelines, and part of the literature they did look at

19   was what you were talking about.

20   The problem that they found was that it

21   wasn't that applicable. Pilots are much more highly

22   trained than drivers, and the task of flying is

1   considerably different. Of course, we know it's

2   different, but when you think about it, how is it

3   different? They're not confronted with pedestrians

4   walking about in front of them at the last second, and

5   I'm sounding facetious, but that's really what it's all

6   about.

7   MR. MELLANDER: Yeah, I appreciate that, and

8   I mean trains, plans, it's a very controlled environment,

9   so to speak, but on the other hand, the technology to

10   hand these issues may be there or applicable to what we

11   are talking about today.

12   So what I'm saying is that we should maybe

13   look into that and try to learn from what they have

14   achieved during all these years.

15   DR. KANIANTHRA: Thank you.

16   We have two questions.   Any of the

17   researchers or any of the presenters who want to handle

18   this. One is regarding: what is the potential for eye

19   trackers to be integrated into future vehicles to serve

20   as a real time monitoring device to warn drivers of

21   inattention?

22   Anybody who want to take a crack at it?

1   Ian? Tom?

2   I would ask why not.

3   DR. DINGUS: Well, Ian and I have differing

4   opinions about eye trackers. So I'll jump in first.

5   You know, I think it's potentially a good

6   idea to do real time management using eye tracking and

7   things like that, although I'm not sure what you could

8   reasonably do with the information if you had it in terms

9   of limiting device interaction. I mean, I suppose there

10   are some things you could do.

11   Eye tracking is difficult, particularly eye

12   tracking where the driver doesn't have to wear any

13   devices at all, and the technology is not quite there in

14   terms of being able, you know, to get this information

15   reliably without any calibration and without wearing any

16   kind of head gear or a monocle or something like that.

17   So I think the practicality of doing that is

18   probably some years away.

19   Having said all of that, you know, I don't

20   necessarily think it's a bad idea and we should keep an

21   idea on it if the technology ever matures to that point.

22   DR. KANIANTHRA: Thank you.

1   Riley?

2   DR. GARROTT: First of all, let me say I

3   agree with you, Tom, that it's some years out before the

4   technology matures, but I thought I should mention

5   perhaps that NHTSA has a research program going with

6   Carnegie Mellon University, the goal of which is to in

7   real time detect driver drowsiness by looking at the eyes

8   as people drive down the road.

9   So we are trying to do some work in that

10   area.

11   DR. NOY: I would just add that from my

12   experience with using eye trackers, I think I would agree

13   with Tom to some extent that we don't have the technology

14   today to be able to monitor, interpret, and understand

15   what drivers are intending to do by looking at their eye

16   tracking data. It takes is several months to look at eye

17   tracking video recordings of studies to try to understand

18   what happened during the experiment. So doing this in

19   real time is a real challenge, but at the same time I'd

20   like to make an observation that there are some

21   researchers in Europe who are looking at, and, in fact,

22   also in the United States in different applications,

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1 looking at trying to anticipate what drivers' desires are

2 or intentions are from driver actions, and this could be

3 eye movement, or it could be the use of a steering wheel

4 or brake pedals or gas pedals. It's an anticipatory

5 interpretation of what the driver is trying to do in

6 order to be able to assist the driver in the driving

7 task.

8   And I know some of the work in Europe, for

9 example, is looking at monitoring the complexity of the

10 traffic situation and think of the maneuver the driver is

11 involved with in terms of trying to modulate the load

12 that is being presented to the driver by in-vehicle

13 systems.

14   So, for example, yes, you would monitor

15 whether, in fact, the vehicle is involved in some kind of

16 a maneuver in order to mute the cell phone or some other

17 convenience device on the vehicle. There's a lot of

18 research like this that tries to adapt to the driver by

19 monitoring presumably what the driver's work load might

20 be under the circumstances.

21   DR. KANIANTHRA: Thank you.

22   The last item on the agenda is summary and

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1   discussion, but before we get to that, I want to thank

2   all of you who took trouble to attend this public

3   meeting, and also I want to thank all of the speakers who

4   have taken the time to come here. We have gathered a lot

5   of information.

6   Also, I want to thank all of the panel

7   members who have been really patient sitting through

8   this. It is a torture, but we got through this.

9   I will be remiss if I don't th[a]nk* my

10   NHTSA staff who have really gone out of the way to put

11   this together, and especially Mike Perel who has carried

12   the whole load here.

13   So I'm going to call on Mike to summarize

14   and discuss within two minutes, how about that?

15   MR. PEREL: Sure. Well, are you ready for

16   the pop quiz on what you learned in class today? It was

17   a lot, and I don't think I'm able to summarize all of it.

18   I wasn't able to take notes that fast.

19   But I just wanted to say I think our meeting

20   goals were met. I mean we were trying to share

21   information. We got a lot of that. We wanted to get

22   different perspectives. I think we got that.

1   I think one of the interesting things I

2   picked up in terms of perspectives, I think I heard a

3   sort of debate between the question of does technology

4   cause stupidity or can technology cure stupidity. I

5   think we're dealing with a little bit of that kind of

6   debate.

7   We also talked about sharing responsibility

8   and involving all stakeholders. I heard a number of

9   people mention their interest and willingness to help us

10   in various endeavors, and those names I did take down,

11   and we'll be calling you to help with several things,

12   including our proposed technical workshop later this

13   fall.

14   Just looking at a few of the other goals I

15   mentioned, we were trying to develop an understanding of

16   the direction technology is going. I think we heard a

17   number of presentations that opened our eyes to where

18   technology might be going and is going.

19   How to measure and characterize the nature

20   of the safety problem, we certainly heard a lot about

21   that and the additional challenges we have to do that

22   better.

1   Initiatives being undertaken to minimize the

2   safety problem. We heard some industry groups talk about

3   what they were doing.

4   And, of course, we heard a lot about current

5   research findings and directions. So I'm glad that we

6   had a successful meeting.

7   I would mention one other thing. I think I

8   told you at the beginning if any of you were here then,

9   take our flyer that talks about the Internet forum, and

10 if you haven't logged in, log in when you leave the room.

11

12   I've been hearing that because of all the

13 publicity we've gotten that the server at the company

14 that set this up is pretty swamped. So today might not

15 be the day to do that, and we apologize. You know, this

16 is the first time we've done it, and we'll know how to do

17 it better, you know, next time, but hopefully we'll have

18 that problem worked out, and you can log onto the Web

19 site, you know, in a short time.

20   I'll just add my thanks to all the people

21 that helped and the panelists and the speakers. I know

22 it's a lot of work to put together a presentation on

1 short notice on a controversial subject, and if any of

2 the speakers are still out there, and I'm not seeing

3 everybody, but those who are, I appreciate that.

4   Thank you.

5   DR. KANIANTHRA: Thank you.

6   (Applause.)

7   DR. KANIANTHRA: The transcripts of this

8 meeting, as well as the presentations which have been

9 made here, will be on our Web site eventually. I don't

10 know how long, maybe six to eight weeks. We are going to

11 have a follow-up workshop of experts by invitation some

12 time late in the summer or early fall with the hope that

13 we can develop some kind of research program [plan]*

14 leading to evaluation of some of the systems and how to

15 measure and so on.

16   So that's our plan.

17   So now this public meeting is closed, and

18 thank you.

19   (Whereupon, at 3:50 p.m., the meeting was

20 concluded.)

21 **NOTE/ADDENDUM:** * [ ] indicates a typographical correction made by NHTSA

22 reviewer.